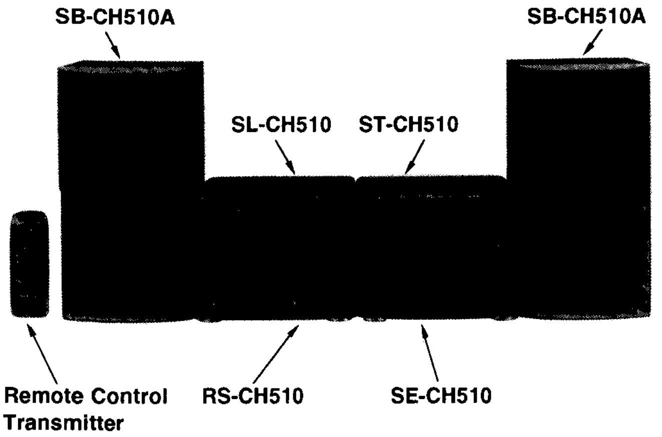
ORDER NO. AD9407197C8

Service Manual

Amplifier

Amplifier

SE-CH510



Colour

(K) .... Black Type

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Areas

Suffix for Model No.	Area	Colour
(E)	Europe	(K)
(EB)	Great Britain	
(EG)	Germany and Italy	
(GC)	Asia, Latin America, Middle Near East and Africa	
(GN)	Oceania	

System: SC-CH510

Specifications

Power output	
DIN 1 kHz, THD 1%, both channel driven	2 × 35 W (6Ω)
Total harmonic distortion	
Rated power at 1 kHz	1% (6Ω)
Half power at 1 kHz	0.09% (6Ω)
Load impedance	
MAIN	6Ω
S/N (rated power)	
MAIN	84 dB
Frequency response	
MAIN	40 Hz – 30 kHz

■ General

Power consumption	128 W
Power supply	
For (E) and (EG) areas	50 Hz/60 Hz AC, 230 V
For (EB) and (GN) areas	50 Hz/60 Hz AC, 230 V – 240 V
For (GC) area only	50 Hz/60 Hz AC, 110 V/127 V/220 V/240V
Dimensions (W × H × D)	270 × 118.5 × 339.5 mm
Weight	
For (E), (EB), (EG) and (GN) areas	4.2 kg
For (GC) area only	4.4 kg

Notes:

1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

System	Tuner/sound processor	Compact disc player	**Amplifier**	Cassette Deck	Speakers
SC-CH510	ST-CH510	SL-CH510	**SE-CH510**	RS-CH510	* SB-CH510A

*: For (E), (EG), (EB) areas .... Made in PAES
For (GC), (GN) areas .... Made in NABEL

Technics®

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Before Repair

(1) Turn off the power supply. Using a 10 Ω, 10 W resistor, connect both ends of power supply capacitors (C701, C702) in order to discharge the voltage.

(2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50/60 Hz in NO SIGNAL mode should be shown below with respect to supply voltage 110 V/127 V/220 V/240 V.

Power supply voltage	AC 230 V	AC 240 V	AC 110~127 V	AC 220~240 V
Consumed current 50Hz	50~150 mA	50~150 mA	100~320 mA	50~160 mA

Protection Circuitry

The protection circuitry may have operated if either of the following conditions is noticed:

∗No sound is heard when the power is switched ON.

∗Sound stops during a performance.

The functions of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

If this occurs, follow the procedure outlined below:

1. Switch OFF the power.
2. Determine the cause of the problem and correct it.
3. Switch ON the power once again.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first switched OFF and then ON again.

For aras except (E) (EB) (EG) (GN)

CAUTION:

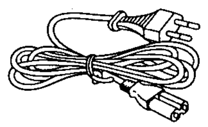
The AC voltage differs according to the area.

Be sure to set the proper voltage in your area befor use.

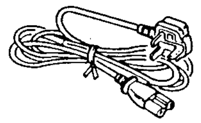
■ Accessories

- AC power supply cord 1

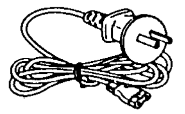
for (E), (EG) and (GC) areas : (RJA0019-2A)



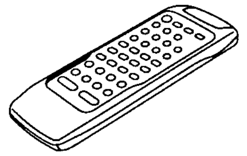
for (EB) area : (VJA0733)



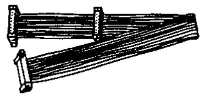
for (GN) area : (RJA0036-K)

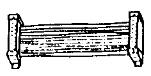


- Remote control transmitter
  (RAK-CH144WH) 1

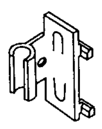


- Flat cable
  Long (REX0511) 1
  Short (REX0608) 1

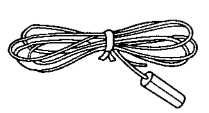




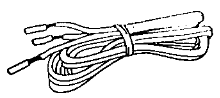
- Antenna holder
  (RMN0244) 1

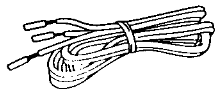


- FM indoor antenna
  (RSA0007) 1

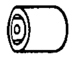


- Speaker cords
  (REE0499) 2

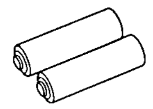




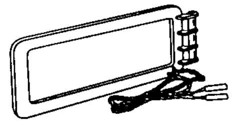
- Attachment plug
  for (EB) area (SJP9009) 1



- Batteries
  (UM-4, "AAA", R03) 2
  Note: These are available on sales route.

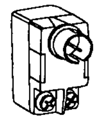


- AM (LW/MW) loop antenna
  (RSA0012) 1

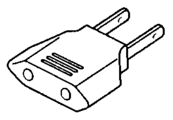


- Mounting screw
  (XTN3+12AFZ) 1

- Antenna plug
  (RFE0014) 1
  for (GC) and (GN) areas



- Power plug adaptor
  (SJP5213-2) 1
  for (GC) area only



Note:
The configurations of AC power supply cord and FM indoor antenna differ according to area.

■ Caution for AC Mains Lead

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◈ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

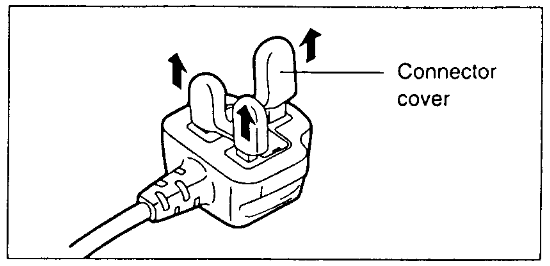
This apparatus was produced to BS 800.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚.

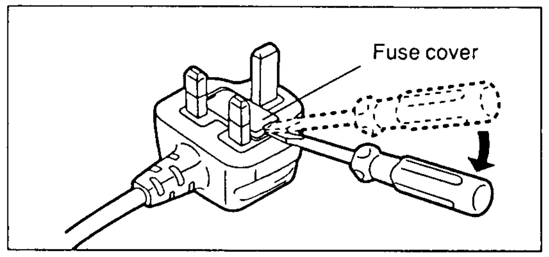
Before use

Remove the connector cover as follows.

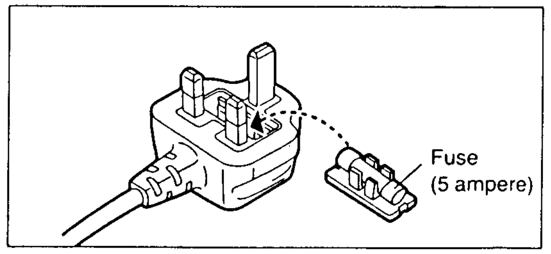


How to replace the fuse

1. Remove the fuse cover with a screwdriver.



2. Replace the fuse and attach the fuse cover.



■ Stacking the Components

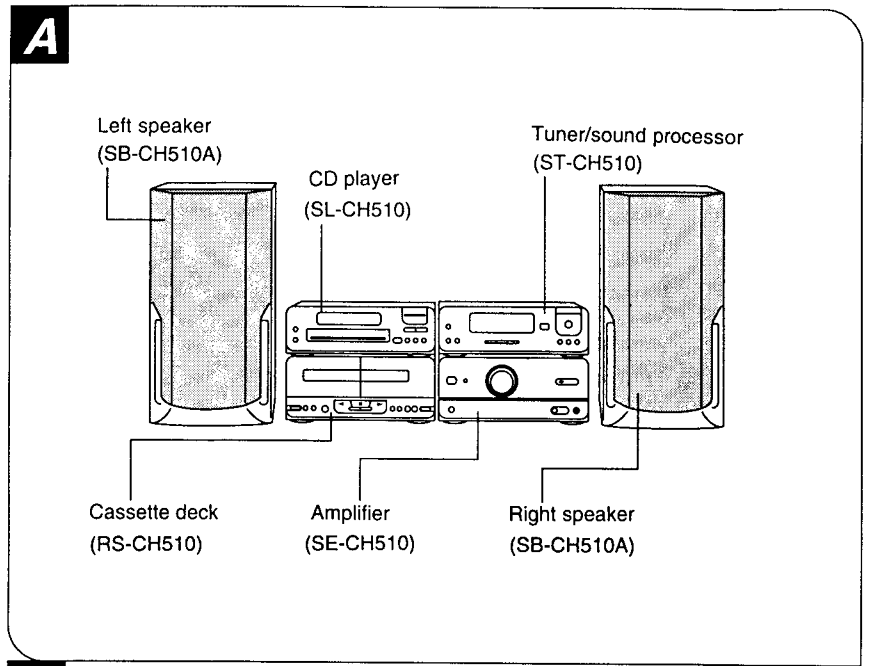
Install the various components as shown in the illustration.

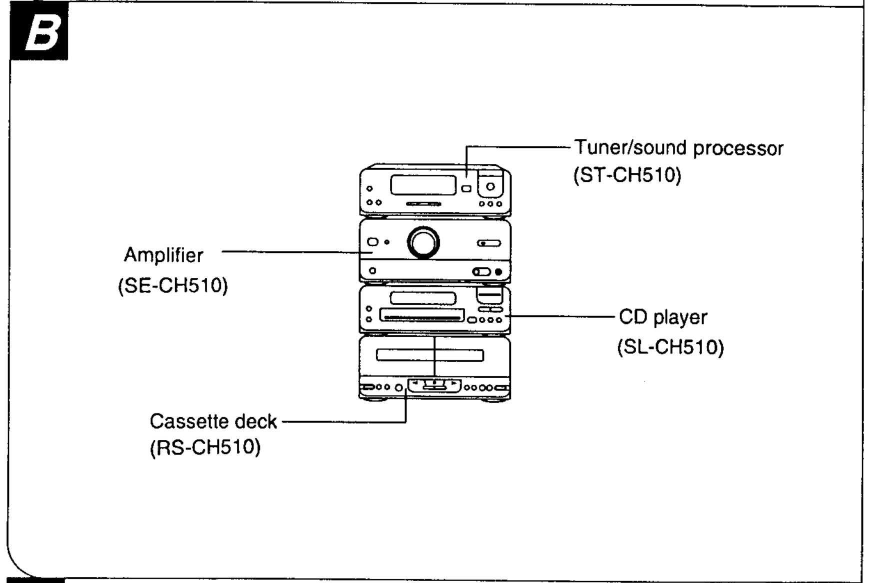
Horizontal stacking **A**

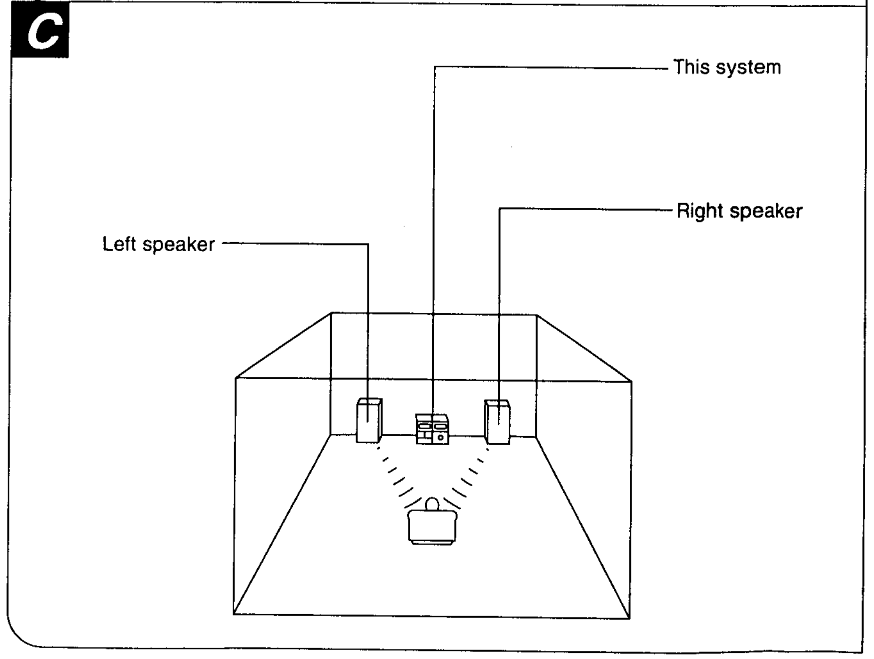
Vertical stacking **B**

System layout example **C**

To produce a better stereo sound, install both speakers away from the system.


A
Left speaker
(SB-CH510A)
CD player
(SL-CH510)
Tuner/sound processor
(ST-CH510)
Cassette deck
(RS-CH510)
Amplifier
(SE-CH510)
Right speaker
(SB-CH510A)


B
Tuner/sound processor
(ST-CH510)
Amplifier
(SE-CH510)
CD player
(SL-CH510)
Cassette deck
(RS-CH510)


C
This system
Right speaker
Left speaker

■ Connections

Connect the AC power supply cord after you have connected all other cables.

1 **Connect the flat cables.**
Hold the connector with the recessed part up and press in at the center until you hear a click.

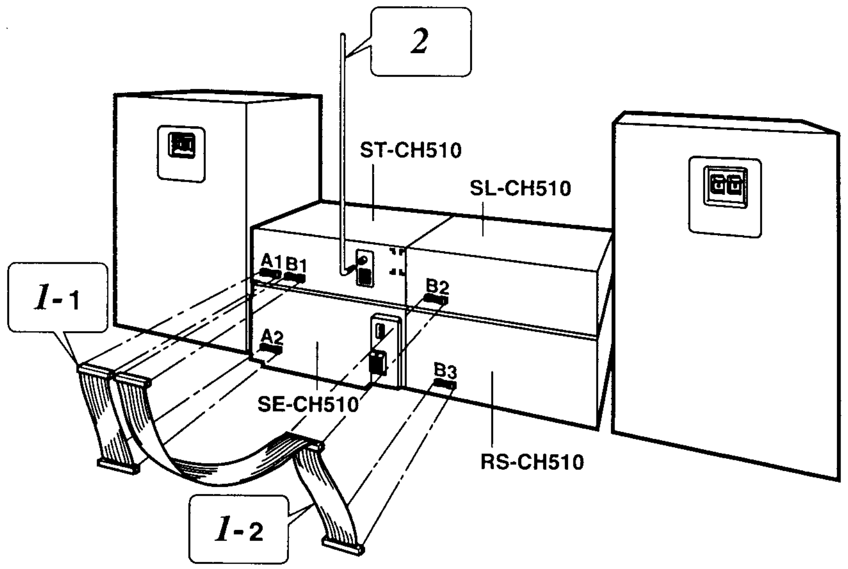
1. Connect the shorter flat cable to the terminal of the tuner/sound processor and amplifier.
2. Connect the longer flat cable to the terminal of the tuner/sound processor, compact disc player, and cassette deck.

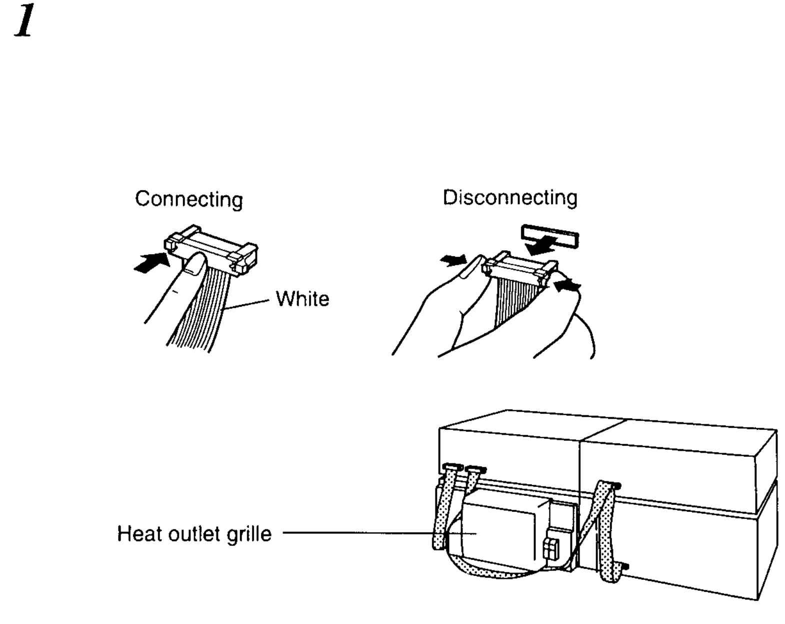
Be sure to connect the blue-colored connector to B1 (tuner/sound processor).
After connection, hold and press the cable as flat to the back of the unit as possible. (To minimize noise pickup while listening an AM broadcast)

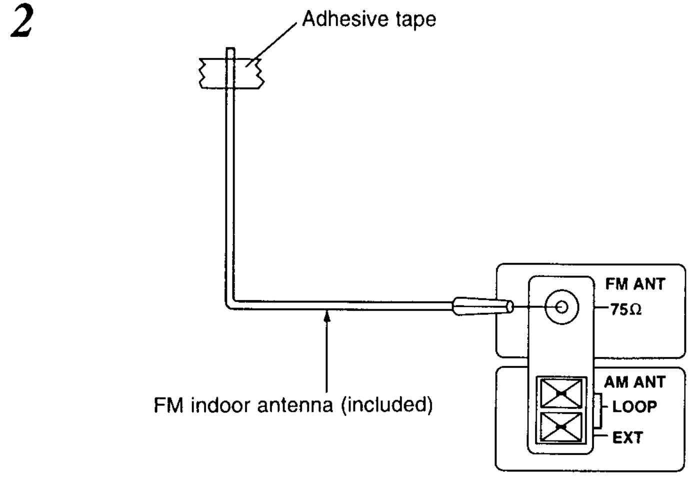
Do not try connecting or disconnecting the flat cables while the power is switched to ON.

2 **Connect the FM indoor antenna.**
Install the antenna on a wall at a height and in a direction which result in the best reception.
The tip of the internal antenna wire should not come into contact with any metal objects.
When you cannot get a good reception with this FM indoor antenna, we recommend you install an FM outdoor antenna (not included).

(To be continued)


2
ST-CH510
SL-CH510
1-1
A1 B1
B2
A2
B3
SE-CH510
RS-CH510
1-2


1
Connecting
Disconnecting
White
Heat outlet grille


2
Adhesive tape
FM ANT
75Ω
AM ANT
LOOP
EXT
FM indoor antenna (included)

(Continued)

3 Connect the AM (MW/LW) loop antenna.

1. Attach the antenna holder to the rear panel of the tuner/sound processor. Press the antenna holder hard enough to get it fixed firmly in the place, with a click.
2. Clamp the antenna to the antenna holder.
3. Connect the antenna terminal to the rear panel of the tuner/sound processor.

① Strip off the outer covering.
② Twist the wire.
③ Insert the wire to the terminal of the tuner/sound processor.
④ Close the lever of the terminal.

(After you have connected all other cables)

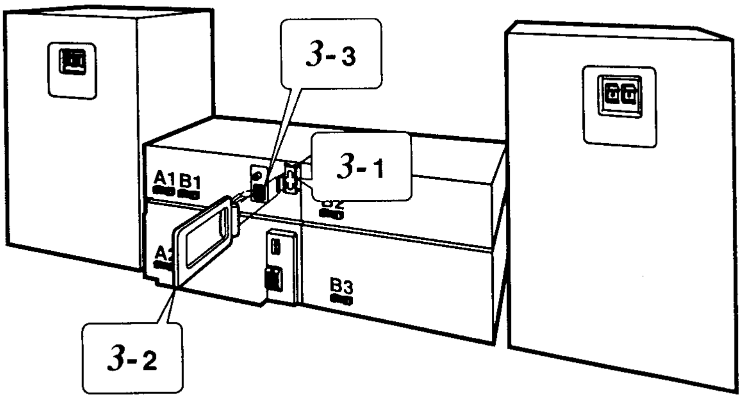
4. While listening to a MW/LW broadcast, position the loop antenna for the best reception.

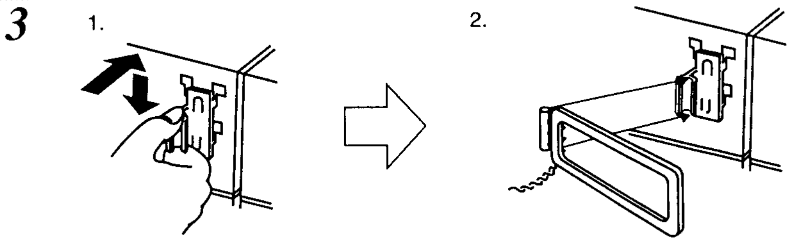
You may attach the antenna holder to a rack or other structure. Use a screw (included) to attach as showed in the figure. **A**

Note

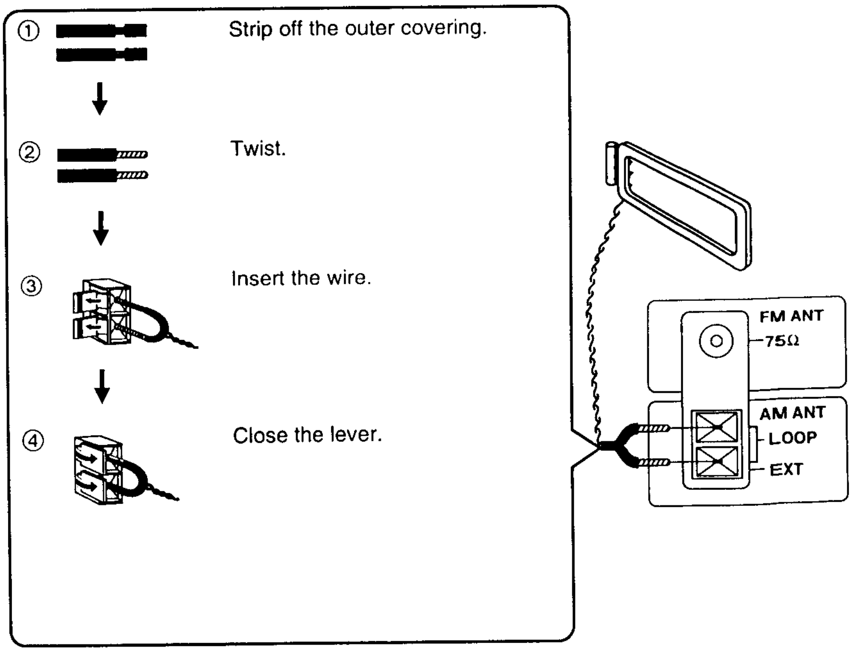
To minimize noise pickup, keep the AM loop antenna cord away from the flat cables.

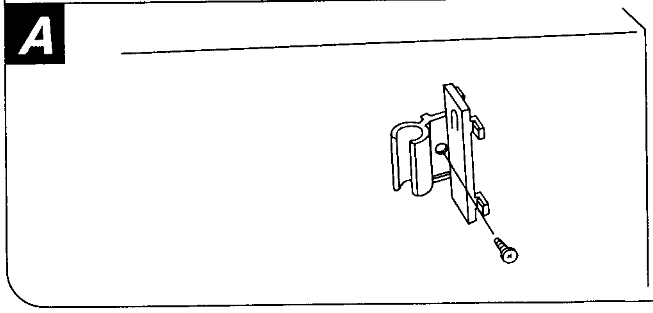
(To be continued)


3-3
3-1
3-2
A1 B1
A2
B2
B3



3.


①
Strip off the outer covering.
②
Twist.
③
Insert the wire.
④
Close the lever.
FM ANT
75Ω
AM ANT
LOOP
EXT



(Continued)

4 Connect the right (R) left (L) speaker cables.

Note

Be sure to connect speaker cables before connecting the AC power supply cord.

- The load impedance of any speaker used with this unit must be 6–8Ω.

Connection of speaker cables A

1. Strip off the outer covering, and twist the center conductor. Make sure the bare ends of the wires are not unraveled. (If they are, twist them tight again.)
2. ① Tilt the lever back and insert the wire.
   ② Close the lever and pull the cord gently to be sure that it is secured.
3. Insert the wire to the rear panel of the amplifier, and close the lever.

Notes

- To prevent damage to circuitry, never short-circuit positive (+) and negative (−) speaker wires.
- Be sure to connect only positive (+) wires to positive (+) terminals and negative (−) wires to negative (−) terminals.

5 Connect the AC power supply cord after you have connected all other cables and cords.

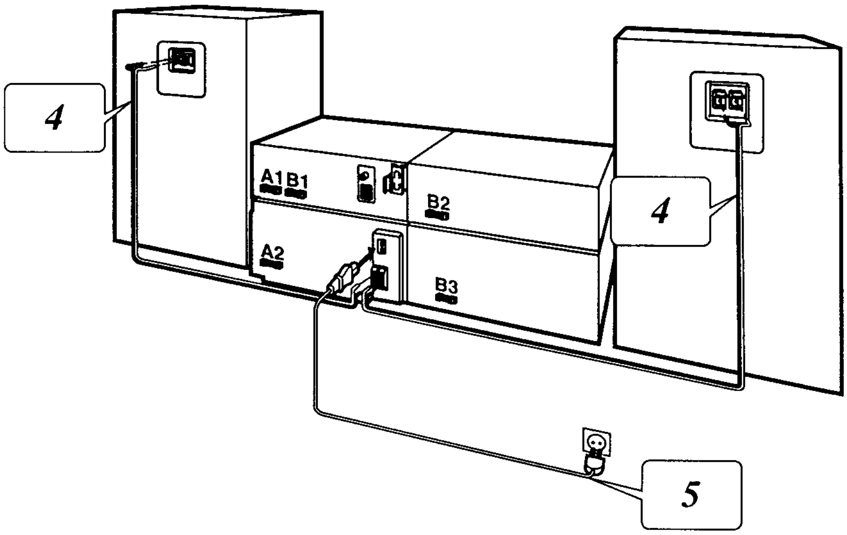
Insertion of connector B

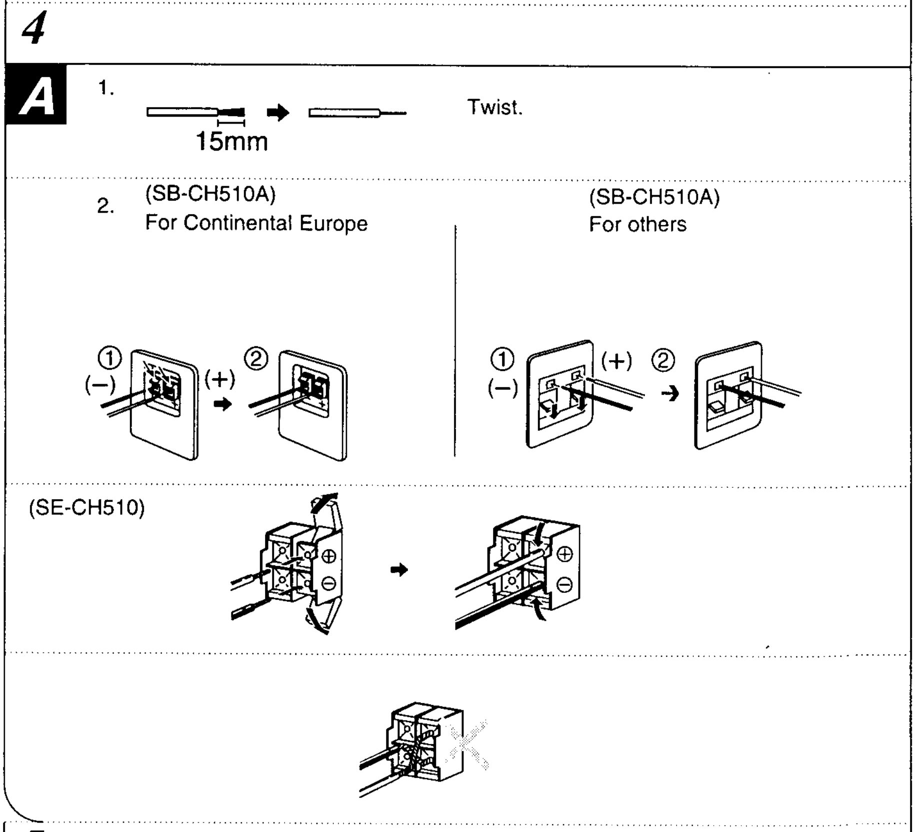
Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing. However there is no problem using the unit.

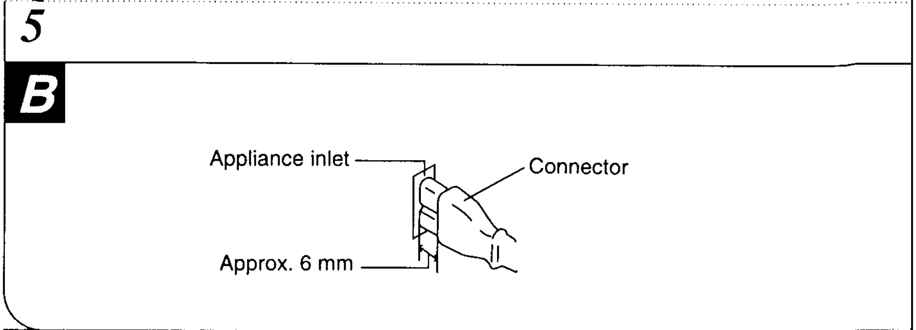
For areas except for Continental Europe C

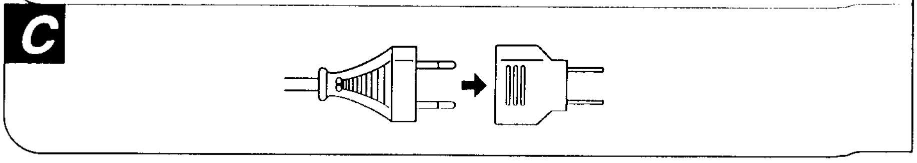
If the power plug will not fit your socket, use the power plug adaptor (included).

(To be continued)


4
A1 B1
B2
A2
B3
4
5


4
A
1.
15mm
Twist.
2. (SB-CH510A)
For Continental Europe
① (−) (+) ②
(SB-CH510A)
For others
① (+) ② (−)
(SE-CH510)
⊕ ⊖
⊕ ⊖


5
B
Appliance inlet
Connector
Approx. 6 mm



(Continued)

Optional antenna connections

FM outdoor antenna (not included) A

You may need an outdoor antenna if you use this system in a mountainous region or inside a reinforced-concrete building, etc.
An outdoor antenna should be installed by a competent technician only.

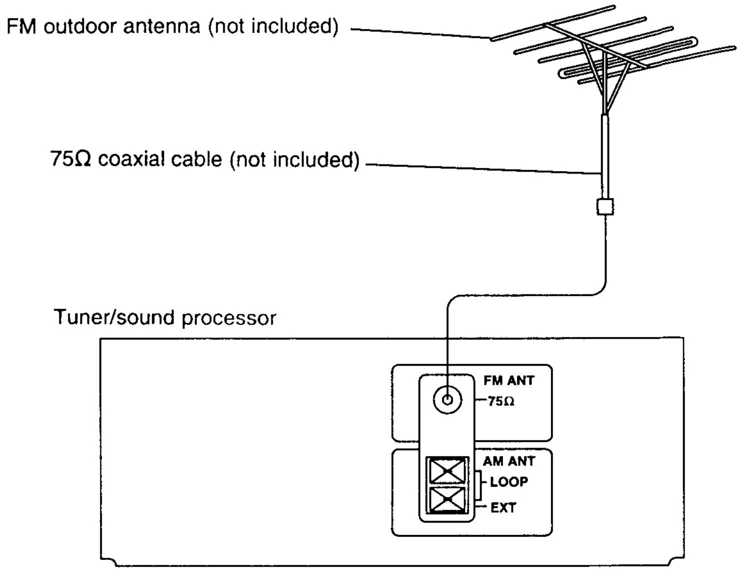
AM (MW/LW) outdoor antenna (not included) B

An outdoor antenna may be required in a mountainous region, or if this system is located inside a reinforced-concrete building, etc.

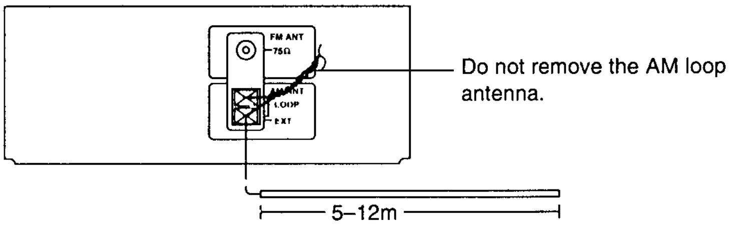
Connect the outdoor antenna without removing the AM loop antenna.
Run 5 to 12 m of vinyl-covered wire horizontally along a window or other convenient location.

(To be continued)

A


FM outdoor antenna (not included)
75Ω coaxial cable (not included)
Tuner/sound processor
FM ANT
75Ω
AM ANT
LOOP
EXT

B


FM ANT
75Ω
AM ANT
LOOP
EXT
Do not remove the AM loop antenna.
5–12m

(Continued)

External unit connection

- For details, refer to the Operating Instructions of the units which are to be connected.
- When units other than those described below are to be connected, please consult with your audio dealer.

Connecting the stereo connection cable (not included) **A**
Connect the red plug to the right (R) connector.
Connect the white plug to the left (L) connector.

DCC (digital compact cassette deck) **B**

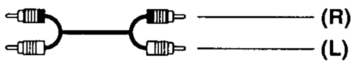
Analog player

This example shows how to connect the analog player with the PHONO OUT/LINE OUT switch.

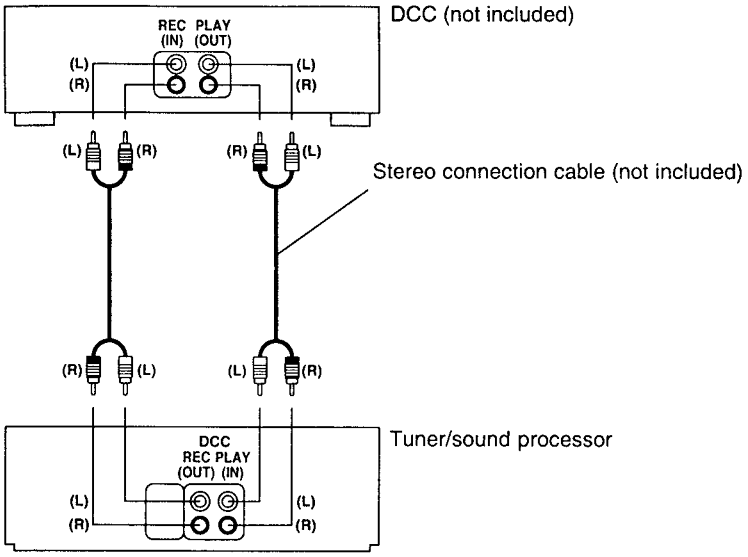
For Continental Europe: **C**
"GND" terminal is for a ground wire use.
Set the PHONO OUT position at the back of the analog turntable.

For others: **D**
Only an analog turntable with a built-in phono equalizer can be connected.
Set the LINE OUT position at the back of the analog turntable.

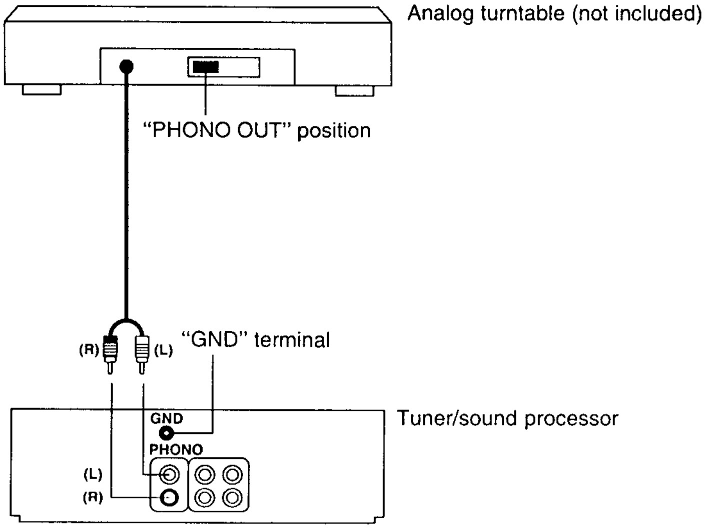
A



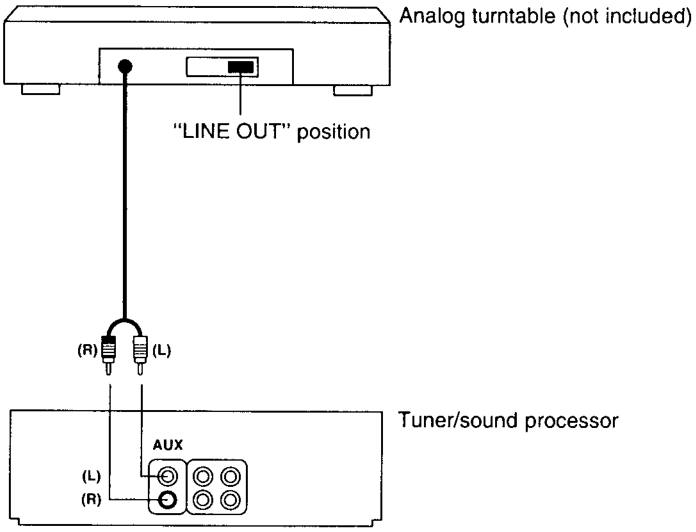
B


DCC (not included)
REC PLAY
(IN) (OUT)
(L)
(R)
(L)
(R)
(L)
(R)
(R)
(L)
Stereo connection cable (not included)
(R)
(L)
(L)
(R)
Tuner/sound processor
DCC
REC PLAY
(OUT) (IN)
(L)
(R)
(L)
(R)

C


Analog turntable (not included)
"PHONO OUT" position
(R)
(L)
"GND" terminal
Tuner/sound processor
GND
PHONO
(L)
(R)

D


Analog turntable (not included)
"LINE OUT" position
(R)
(L)
Tuner/sound processor
AUX
(L)
(R)

■ Location of Controls

① **Power "STANDBY ⏻/ON" switch (POWER, STANDBY ⏻/ON)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

② **Standby indicator (STANDBY)**
When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.

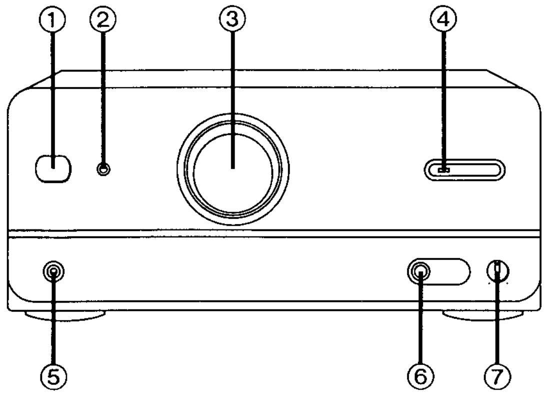
③ **Volume control**

④ **Power indicator**

⑤ **Headphones jack** (ϕ 3.5, 32 Ω)

⑥ **Microphone jack** (ϕ 6.3, 600 Ω)

⑦ **Microphone volume control**



■ Power Source ON/OFF of This Unit SE-CH510

**1. Connect the AC power cord of this unit to an AC outlet and turn it on.
(This unit comes to stand-by mode.)**

**2. Make test point TP701 (TP701) short as shown in Fig. 1.
POWER indicator lights and this unit comes to power ON mode.**

Opration Check

1. Set this unit to power ON mode.
2. Input a signal (1 kHz, 100 mV) to the section between the resistor **R611** (LINE IN for L-ch) and the capacitor **C906** (LINE IN GND) as well as the section between the resistor **R612** (LINE IN R-ch) and the capacitor **C906** (LINE IN GND).
3. Connect the speaker to the speaker terminals and check if it sounds from the speaker.

(Main P.C.B.)

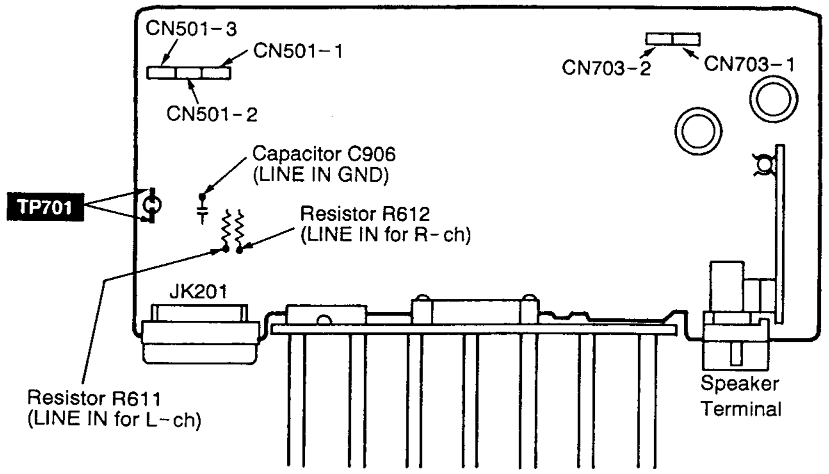

CN501-3
CN501-1
CN501-2
CN703-2
CN703-1
Capacitor C906
(LINE IN GND)
TP701
Resistor R612
(LINE IN for R-ch)
JK201
Resistor R611
(LINE IN for L-ch)
Speaker
Terminal

Fig. 1

■ Operation Check and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Illustrated screws are equivalent to actual size.**
5. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

● Contents

Page

- **Checking Procedure for each P.C.B.**

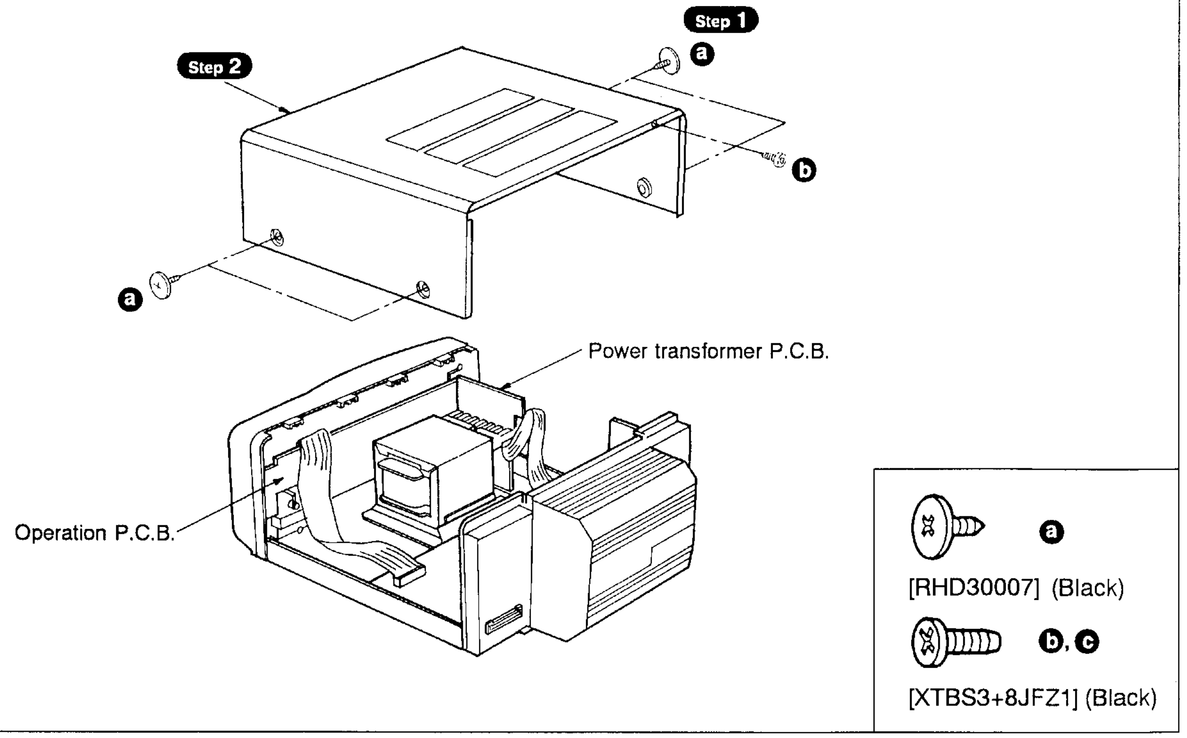
1. Checking for the operation P.C.B. and power transformer P.C.B. .... 12.
2. Checking for the main P.C.B. .... 13.

- **Main Component Replacement Procedures**

1. Replacement for the power IC and regulator transistors .... 13.

■ Checking Procedure for each P.C.B.

1. Checking for the operation P.C.B. and power transformer P.C.B.


Step 1
Step 2
a
b
a
Power transformer P.C.B.
Operation P.C.B.
a
[RHD30007] (Black)
b, c
[XTBS3+8JFZ1] (Black)

■ Operation Check and Main Component Replacement Procedures

NOTE

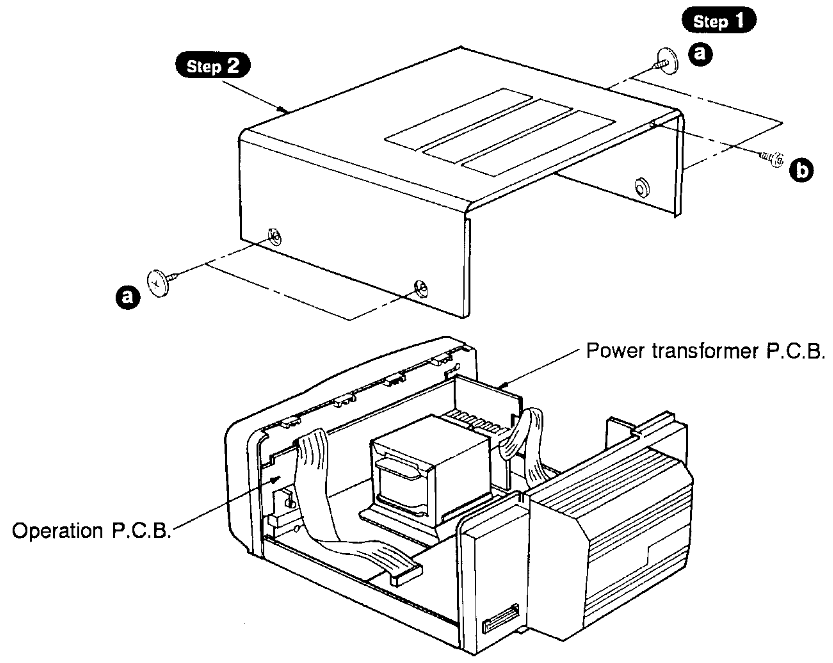
1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Illustrated screws are equivalent to actual size.**
5. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

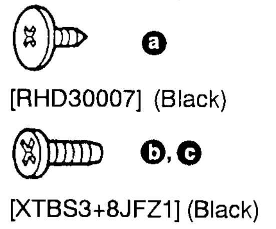
● Contents

Page
- **Checking Procedure for each P.C.B.**
  1. Checking for the operation P.C.B. and power transformer P.C.B. .... 12.
  2. Checking for the main P.C.B. .... 13.
- **Main Component Replacement Procedures**
  1. Replacement for the power IC and regulator transistors .... 13.

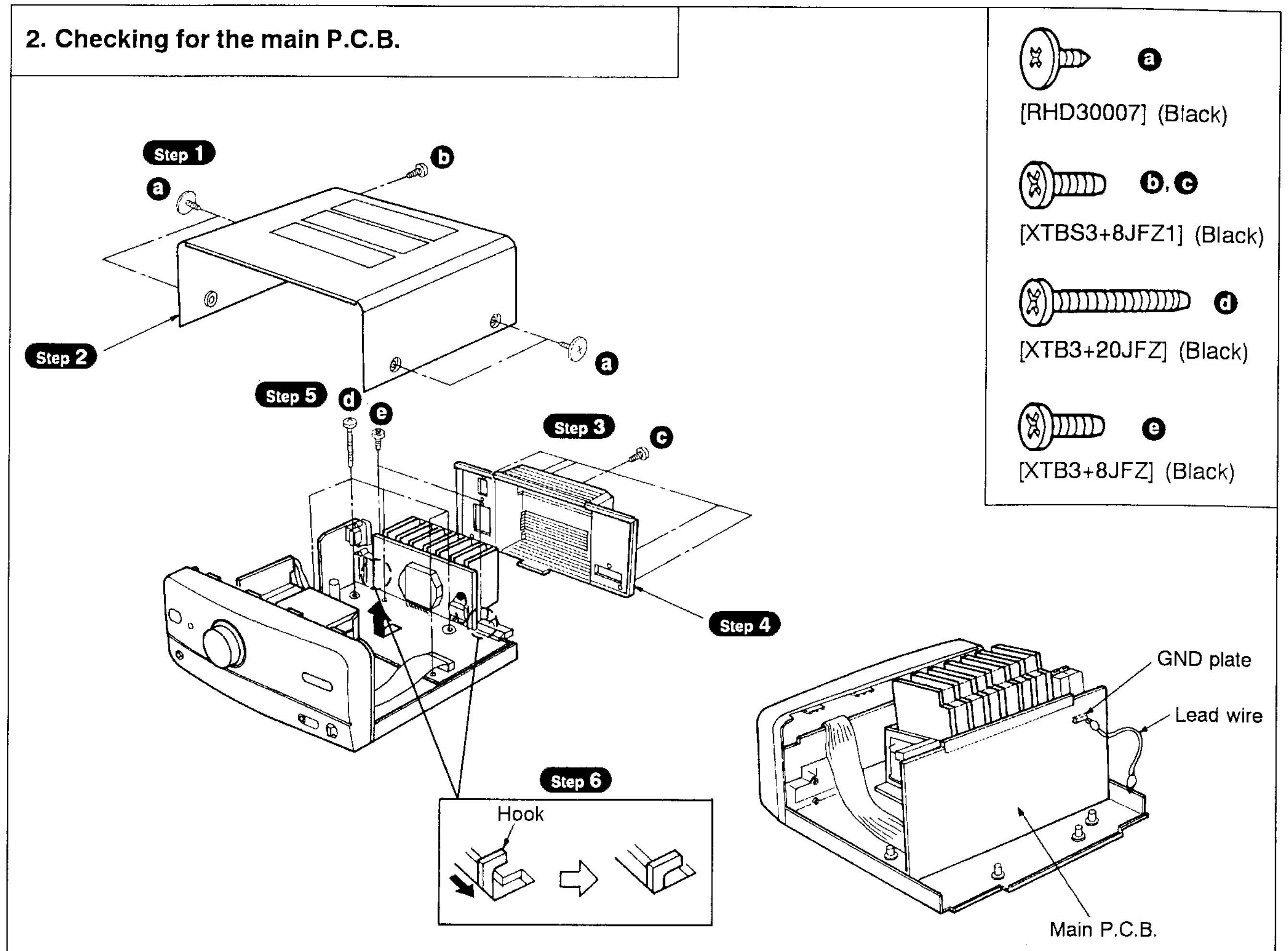
■ Checking Procedure for each P.C.B.

1. Checking for the operation P.C.B. and power transformer P.C.B.


Step 1
a
Step 2
b
a
Power transformer P.C.B.
Operation P.C.B.


a
[RHD30007] (Black)
b, c
[XTBS3+8JFZ1] (Black)

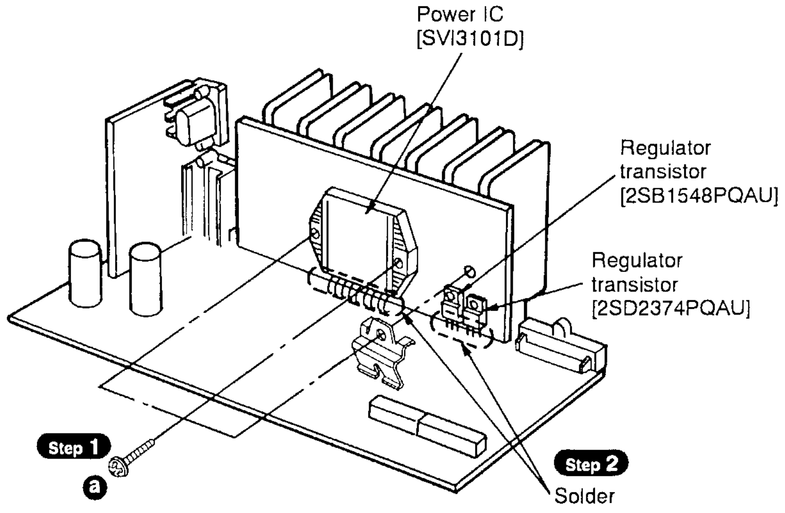
2. Checking for the main P.C.B.


Step 1
a
b
Step 2
a
Step 5
d
e
Step 3
c
Step 4
Step 6
Hook
GND plate
Lead wire
Main P.C.B.
a
[RHD30007] (Black)
b, c
[XTBS3+8JFZ1] (Black)
d
[XTB3+20JFZ] (Black)
e
[XTB3+8JFZ] (Black)

■ Main Component Replacement Procedures

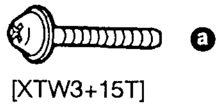
1. Replacement for the power IC and regulator transistors

- Follow the item 2 in checking procedure for each P.C.B. on this page.

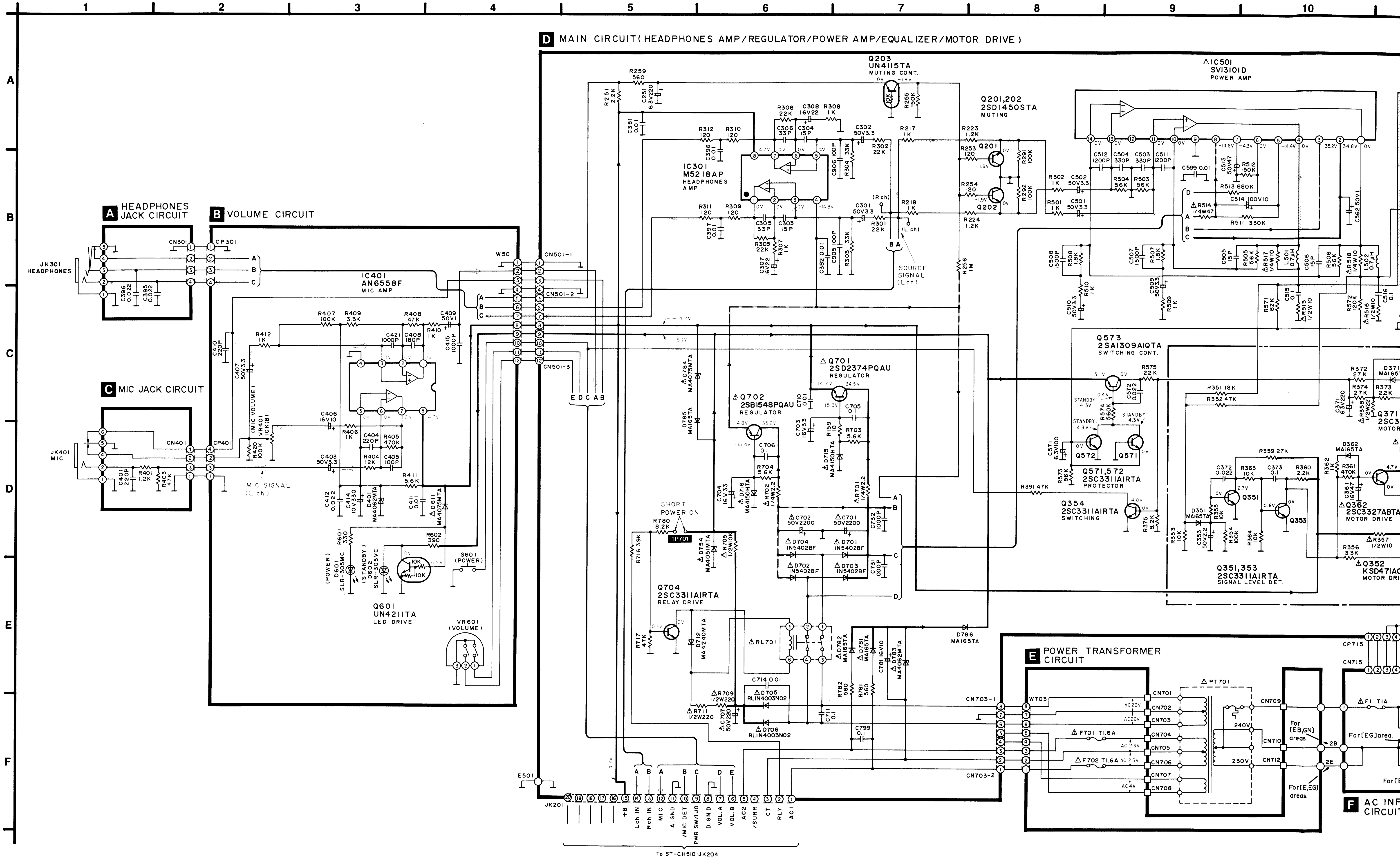

Power IC
[SVI3101D]
Regulator transistor
[2SB1548PQAU]
Regulator transistor
[2SD2374PQAU]
Step 1
a
Step 2
Solder

NOTE

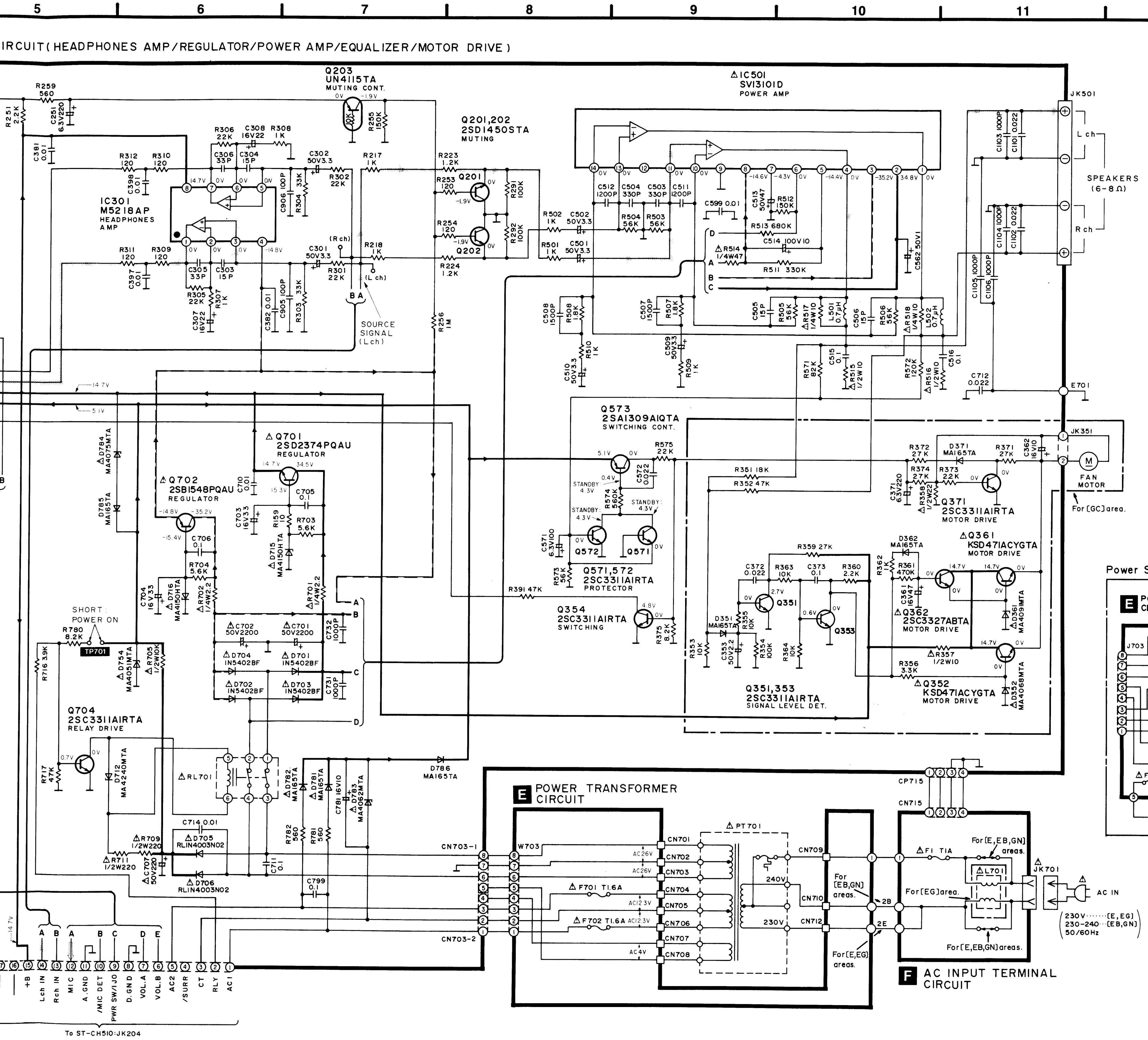
When mounting the power IC or regulator transistor, apply silicone compound (RFKX0002) to the rear side of power IC or regulator transistors.



■ Schematic Diagram (Parts list on Page 22～24)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
D MAIN CIRCUIT(HEADPHONES AMP/REGULATOR/POWER AMP/EQUALIZER/MOTOR DRIVE)
A HEADPHONES JACK CIRCUIT
B VOLUME CIRCUIT
C MIC JACK CIRCUIT
E POWER TRANSFORMER CIRCUIT
F AC INP CIRCUI
JK301 HEADPHONES
JK401 MIC
CN301
CP301
CN401
CP401
W501
CN501-1
CN501-2
CN501-3
IC401 AN6558F MIC AMP
IC301 M5218AP HEADPHONES AMP
Q203 UN4115TA MUTING CONT.
Q201,202 2SD1450STA MUTING
△IC501 SVI3101D POWER AMP
Q573 2SA1309AIQTA SWITCHING CONT.
△Q701 2SD2374PQAU REGULATOR
△Q702 2SB1548PQAU REGULATOR
Q571,572 2SC3311AIRTA PROTECTOR
Q354 2SC3311AIRTA SWITCHING
Q351,353 2SC3311AIRTA SIGNAL LEVEL DET.
△Q362 2SC3327ABTA MOTOR DRIVE
△Q352 KSD471AC MOTOR DRI
Q704 2SC3311AIRTA RELAY DRIVE
Q601 UN4211TA LED DRIVE
D601 SLR-305MC (POWER)
D602 SLR-305VC (STANDBY)
S601 (POWER)
VR601 (VOLUME)
VR401 10K(B) (MIC VOLUME)
△RL701
△PT701
△F701 T1.6A
△F702 T1.6A
SHORT POWER ON
TP701
SOURCE SIGNAL (L ch)
MIC SIGNAL (L ch)
(R ch)
(L ch)
240V
230V
For [EB,GN] areas.
For [E,EG] areas.
For [EG] area.
△F1 T1A
CN701
CN702
CN703
CN704
CN705
CN706
CN707
CN708
CN709
CN710
CN712
CN703-1
CN703-2
W703
CP715
CN715
E501
JK201
+B
Lch IN
Rch IN
MIC
A.GND
/MIC DET
PWR SW/1JO
D.GND
VOL.A
VOL.B
AC2
/SURR
CT
RLY
AC1
To ST-CH510:JK204

IRCUIT(HEADPHONES AMP/REGULATOR/POWER AMP/EQUALIZER/MOTOR DRIVE)


5
6
7
8
9
10
11
12
13
14
Q203 UN4115TA MUTING CONT.
IC501 SVI3101D POWER AMP
Q201,202 2SD1450STA MUTING
IC301 M5218AP HEADPHONES AMP
JK501
L ch
R ch
SPEAKERS (6-8Ω)
SOURCE SIGNAL (Lch)
Q573 2SA1309A1QTA SWITCHING CONT.
Q701 2SD2374PQAU REGULATOR
Q702 2SB1548PQAU REGULATOR
Q571,572 2SC3311AIRTA PROTECTOR
Q354 2SC3311AIRTA SWITCHING
Q371 2SC3311AIRTA MOTOR DRIVE
Q361 KSD471ACYGTA MOTOR DRIVE
Q362 2SC3327ABTA MOTOR DRIVE
Q352 KSD471ACYGTA MOTOR DRIVE
Q351,353 2SC3311AIRTA SIGNAL LEVEL DET.
Q704 2SC3311AIRTA RELAY DRIVE
JK351
FAN MOTOR
For〔GC〕area.
E701
SHORT POWER ON
R780 8.2K
TP701
RL701
D786 MA165TA
E POWER TRANSFORMER CIRCUIT
PT701
CP715
CN715
CN703-1
CN703-2
W703
F701 T1.6A
F702 T1.6A
CN701
CN702
CN703
CN704
CN705
CN706
CN707
CN708
CN709
CN710
CN712
240V
230V
For〔EB,GN〕areas.
For〔E,EG〕areas.
2B
2E
F1 T1A
For〔E,EB,GN〕areas.
For〔EG〕area.
L701
For〔E,EB,GN〕areas.
JK701
AC IN
230V……〔E,EG〕
230-240…〔EB,GN〕
50/60Hz
F AC INPUT TERMINAL CIRCUIT
+B
Lch IN
Rch IN
MIC
A.GND /MIC DET
PWR SW/IJO
D.GND
VOL.A
VOL.B
AC2 /SURR
CT
RLY
ACI
To ST-CH510:JK204

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S601** : Power switch (STANDBY ⏻/ON)
- **S701** : Voltage select switch in 220 V position. For (GC) area only.
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : Power on

- Important safety notice:

  Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

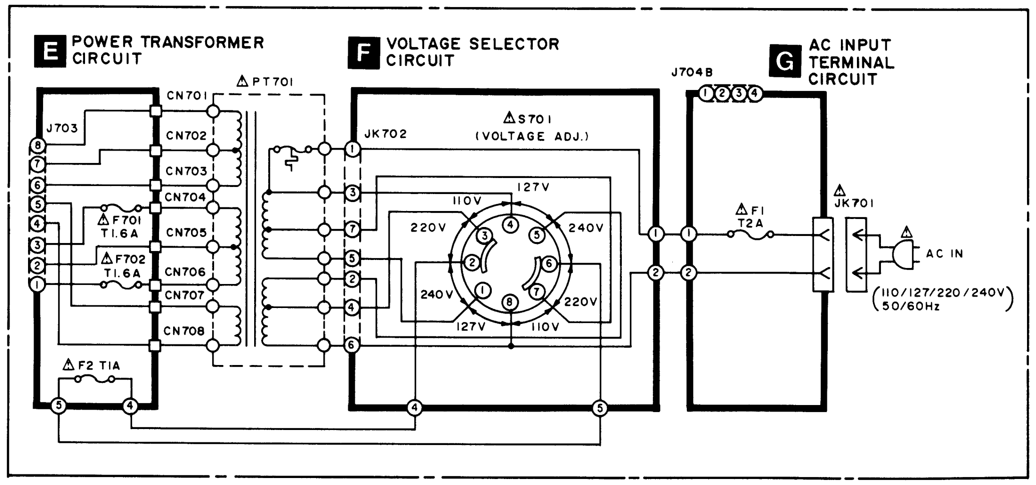
- **Caution!**

  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

- **Voltage and signal line**

━━▶━━ : Positive voltage line
– – ▶ – – :Negative voltage line
░░░ : Source signal line (L-ch)
⇨ : MIC signal

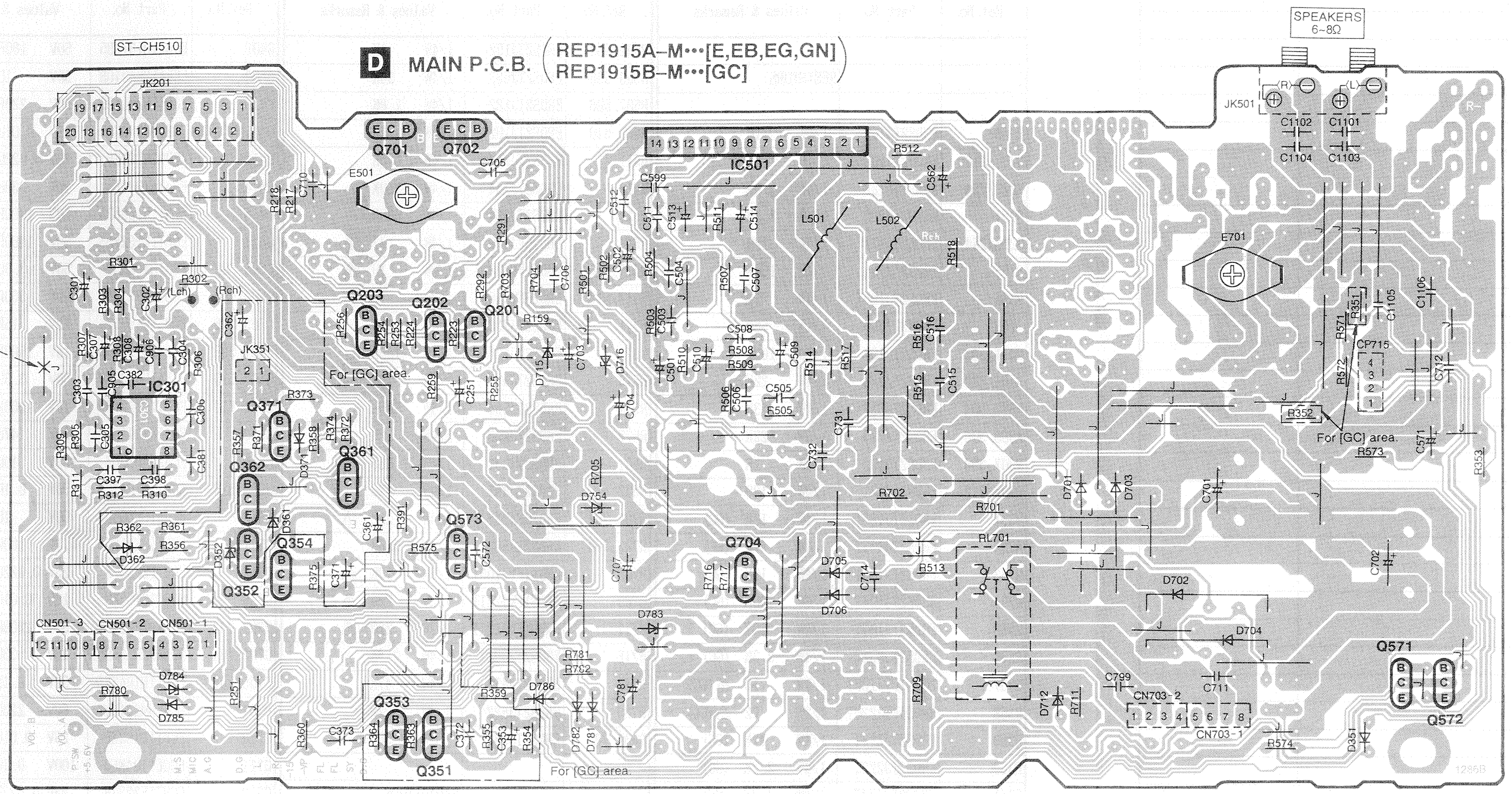
Power Source For 〔GC〕area.


E POWER TRANSFORMER CIRCUIT
F VOLTAGE SELECTOR CIRCUIT
G AC INPUT TERMINAL CIRCUIT
J703
PT701
CN701
CN702
CN703
CN704
CN705
CN706
CN707
CN708
F701 T1.6A
F702 T1.6A
F2 T1A
JK702
S701 (VOLTAGE ADJ.)
110V
127V
220V
240V
J704B
F1 T2A
JK701
AC IN
(110/127/220/240V 50/60Hz)

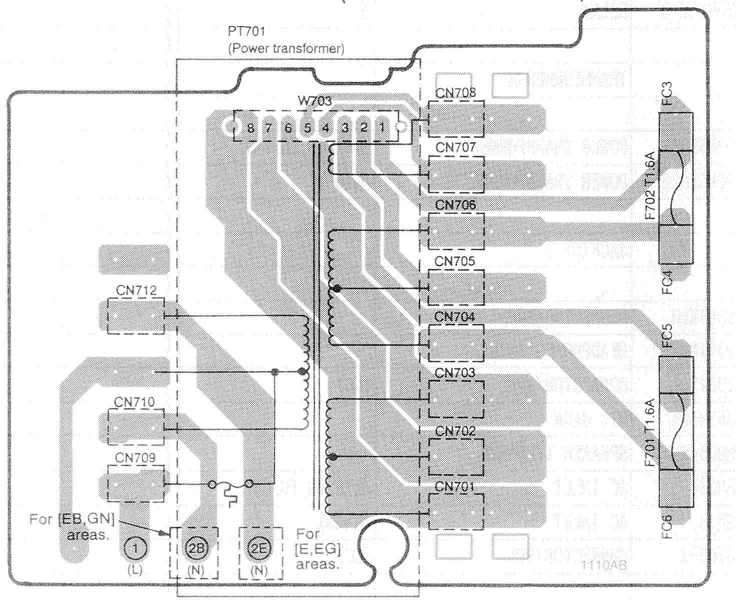
Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

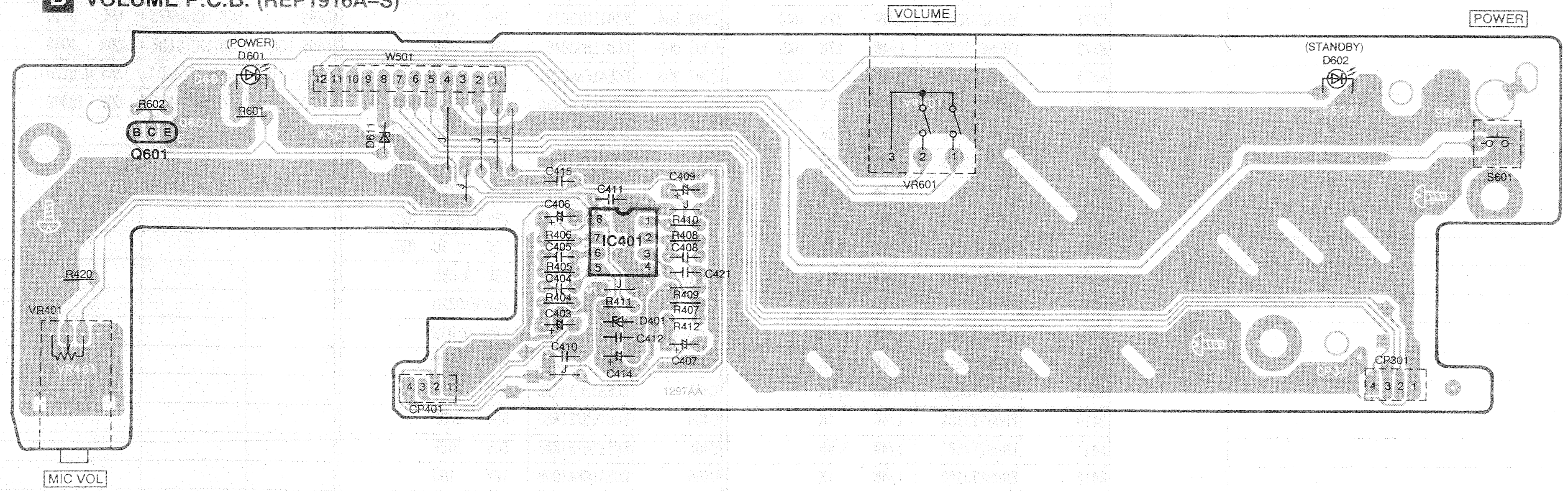
D MAIN P.C.B. (REP1915A–M•••[E,EB,EG,GN] REP1915B–M•••[GC])


ST–CH510
SPEAKERS 6~8Ω
JK201
JK501
JK351
TP701
Q701
Q702
IC501
IC301
E501
E701
L501
L502
Q203
Q202
Q201
Q371
Q361
Q362
Q354
Q352
Q573
Q704
Q353
Q351
Q571
Q572
RL701
CN501–3
CN501–2
CN501–1
CN703–2
CN703–1
CP715
For [GC] area.
1286B

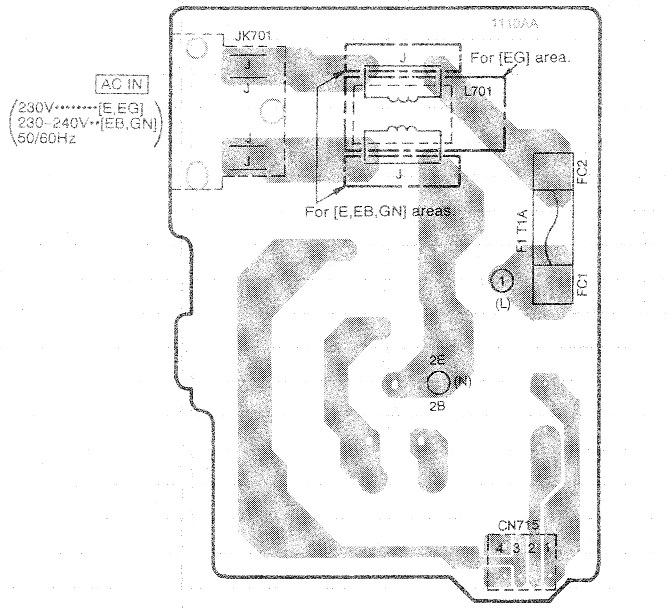
E POWER TRANSFORMER P.C.B. (REP1914A–P•••[EG] REP1914B–P•••[E] REP1914C–P•••[EB] REP1914D–P•••[GN])


PT701
(Power transformer)
W703
CN708
CN707
CN706
CN705
CN704
CN703
CN702
CN701
CN712
CN710
CN709
F702 T1.6A
F701 T1.6A
FC3
FC4
FC5
FC6
For [EB,GN] areas.
For [E,EG] areas.
1110AB

B VOLUME P.C.B. (REP1916A–S)

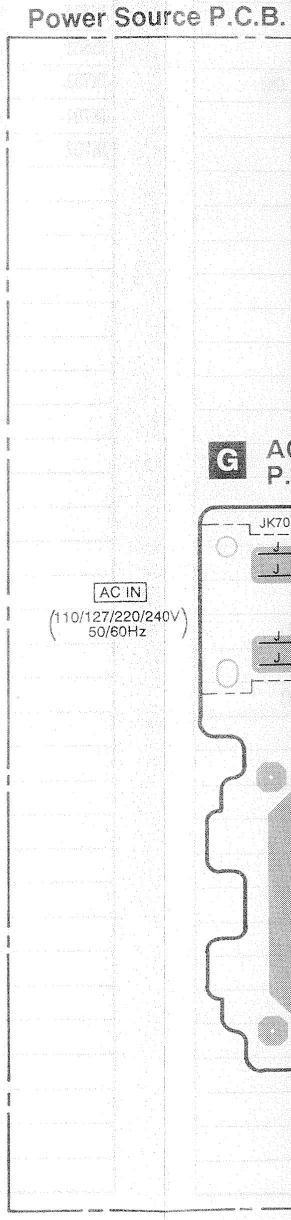

VOLUME
POWER
(POWER) D601
(STANDBY) D602
W501
Q601
IC401
VR601
VR401
S601
CP401
CP301
1297AA
MIC VOL

F AC INPUT TERMINAL P.C.B. (REP1914A–P•••[EG] REP1914B–P•••[E] REP1914C–P•••[EB] REP1914D–P•••[GN])


AC IN
(230V••••••••[E,EG] 230–240V••[EB,GN] 50/60Hz)
JK701
L701
For [EG] area.
For [E,EB,GN] areas.
F1 T1A
FC1
FC2
CN715
1110AA

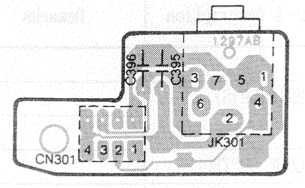
Power Source P.C.B.

G AC P.

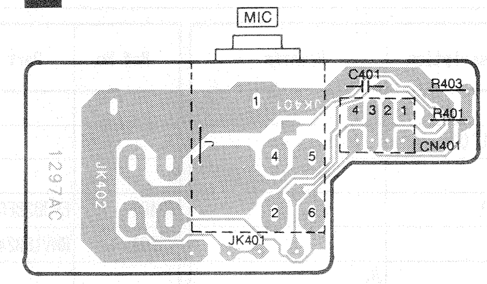

AC IN
(110/127/220/240V 50/60Hz)
JK70

10 11 12 13 14

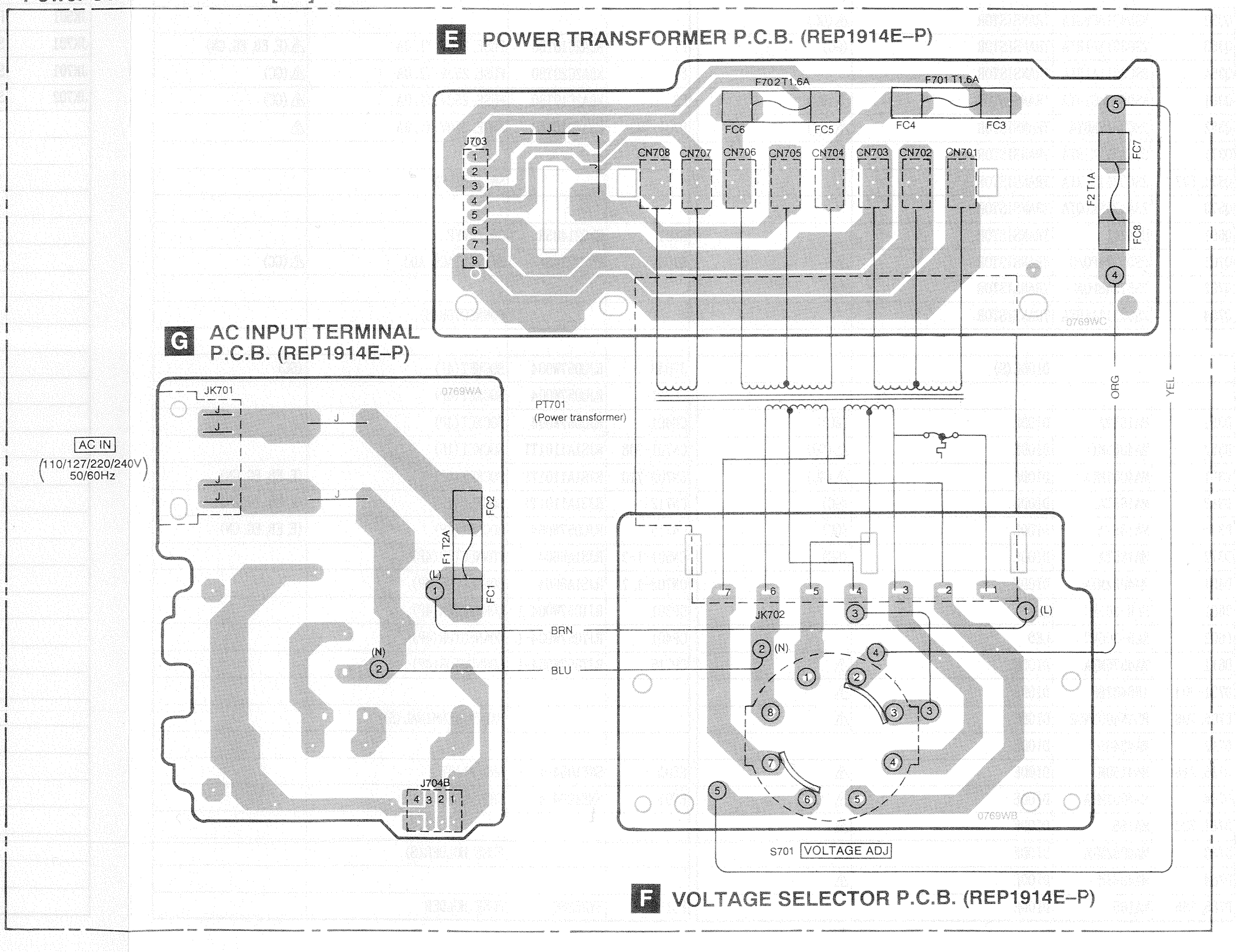
A HEADPHONES JACK P.C.B. (REP1916A–S)


PHONES
1297AB
C396
C395
JK301
CN301
4 3 2 1

C MIC JACK P.C.B. (REP1916A–S)


MIC
C401
R403
R401
CN401
4 3 2 1
1297AC
JK402
JK401

Power Source P.C.B. For [GC] area.

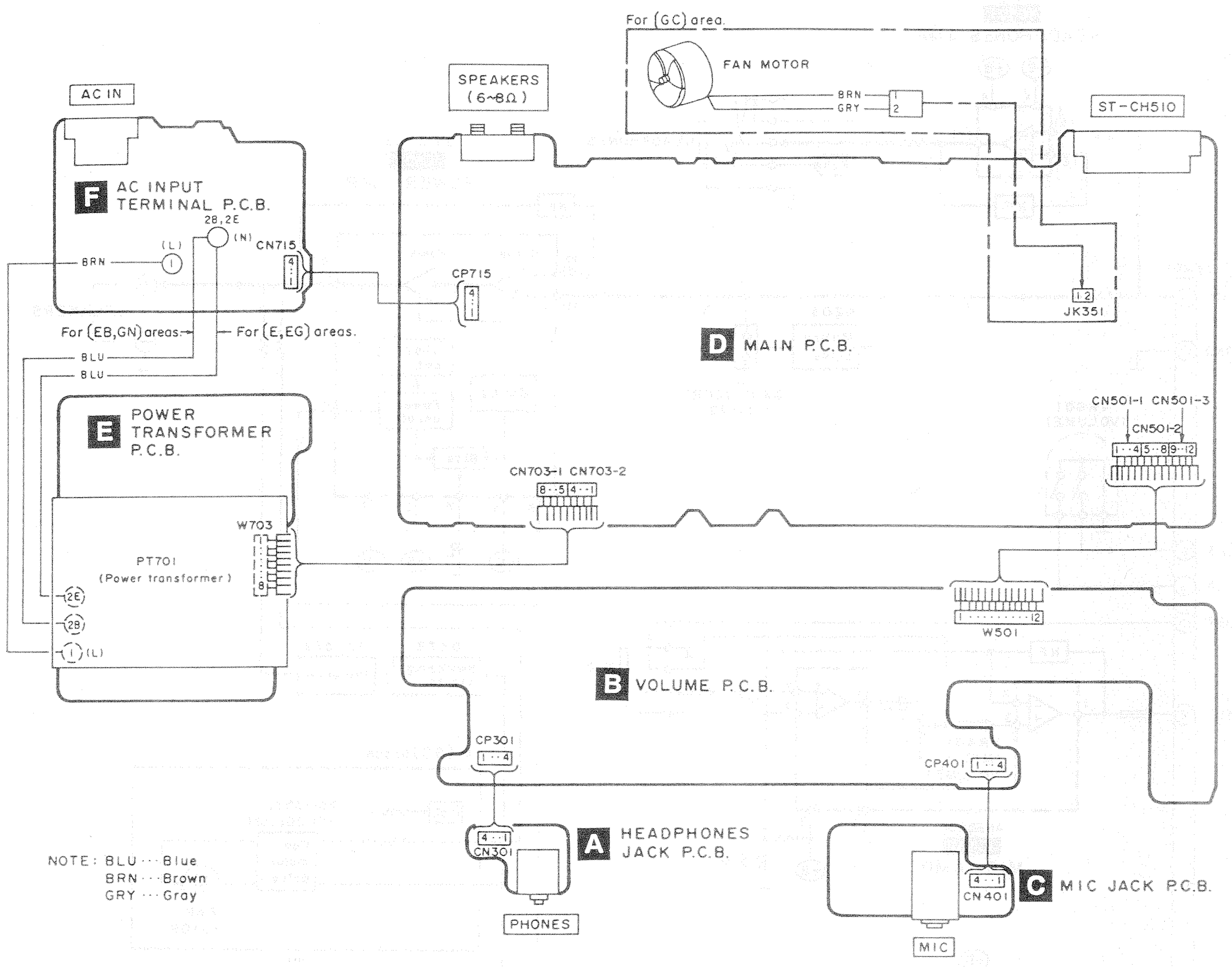

AC IN
(110/127/220/240V 50/60Hz)
F702 T1.6A
F701 T1.6A
FC6
FC5
FC4
FC3
J703
CN708
CN707
CN706
CN705
CN704
CN703
CN702
CN701
FC7
F2 T1A
FC8
0769WC
JK701
0769WA
PT701 (Power transformer)
FC2
F1 T2A
FC1
(L)
(N)
BRN
BLU
ORG
YEL
J704B
4 3 2 1
JK702
0769WB
S701 VOLTAGE ADJ

E POWER TRANSFORMER P.C.B. (REP1914E–P)

G AC INPUT TERMINAL P.C.B. (REP1914E–P)

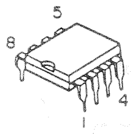
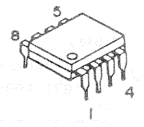
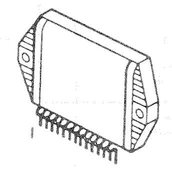
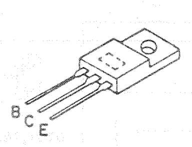
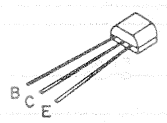
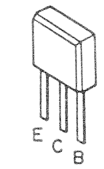
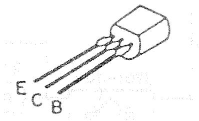
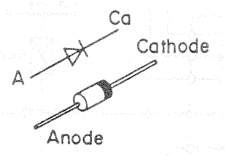
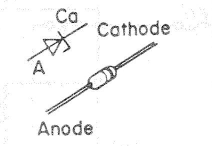
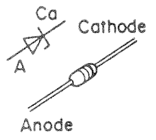
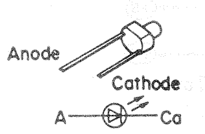
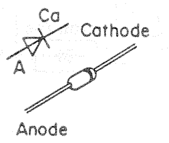
F VOLTAGE SELECTOR P.C.B. (REP1914E–P)

Wiring Connection Diagram


For (GC) area.
FAN MOTOR
BRN
GRY
SPEAKERS (6~8Ω)
ST-CH510
AC IN
F AC INPUT TERMINAL P.C.B.
2B,2E
(L)
(N)
CN715
CP715
JK351
For (EB,GN) areas.
For (E,EG) areas.
BLU
D MAIN P.C.B.
E POWER TRANSFORMER P.C.B.
W703
PT701 (Power transformer)
CN703-1 CN703-2
CN501-1 CN501-3
CN501-2
W501
B VOLUME P.C.B.
CP301
CP401
CN301
A HEADPHONES JACK P.C.B.
PHONES
CN401
C MIC JACK P.C.B.
MIC

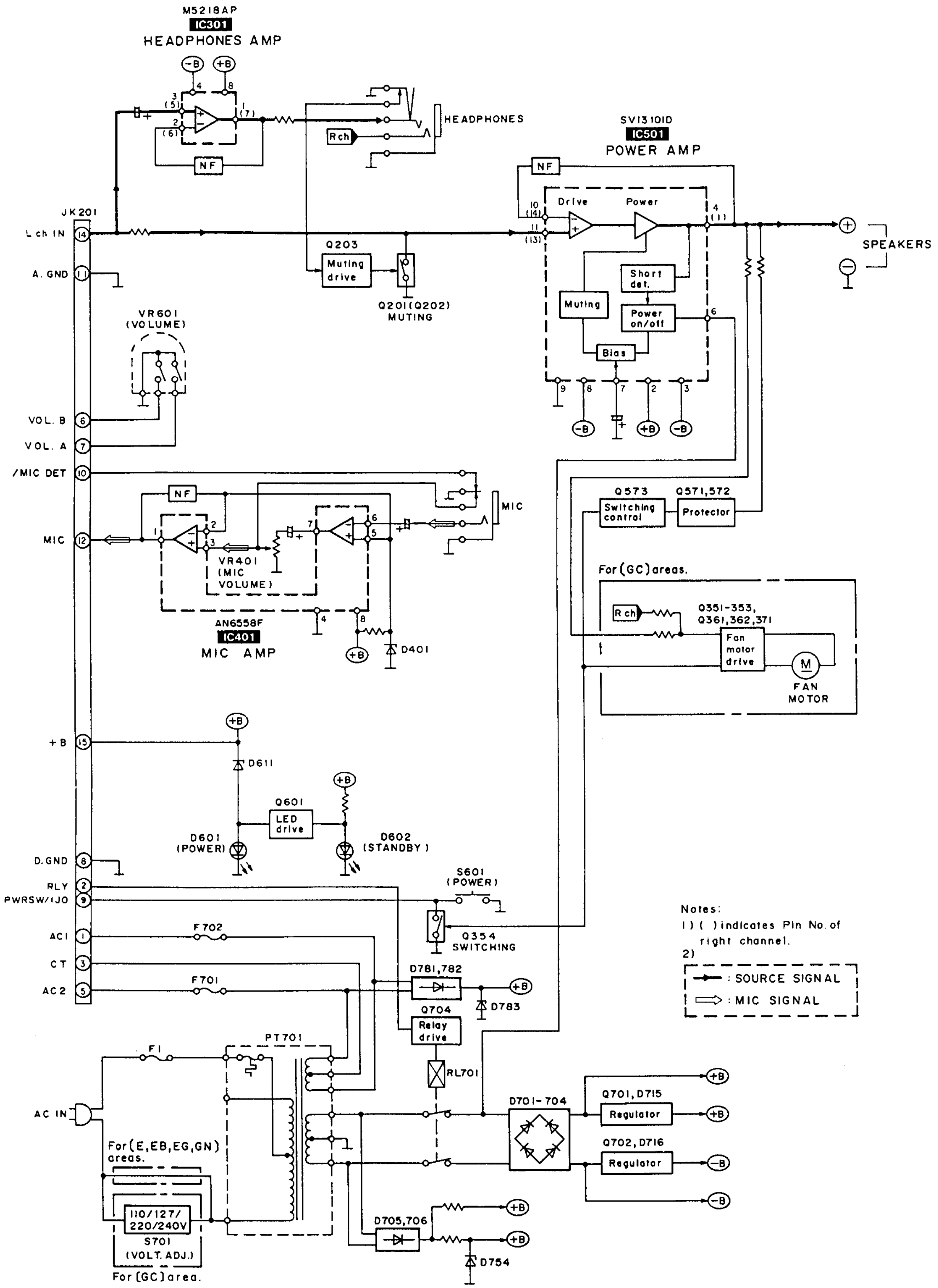
NOTE: BLU ··· Blue
BRN ··· Brown
GRY ··· Gray

• Terminal Guide of IC's, Transistors and Diodes

AN6558F 	M5218AP 	SVI3101D 	2SB1548PQAU 2SD2374PQAU 	2SC3327ABTA 
	UN4115 UN4211 2SA1309AIQTA 2SC3311AIRTA 2SD1450RTA	KSD471ACYGTA 	1N5402BF RL1N4003N02 	MA4150M MA4240H 
	MA4051MTA MA4062MTA MA4068M MA4075MTA MA4091MTA	SLR-305VC SLR-305MC 	MA165TA 	

8
5
1
4
14
B C E
E C B
Ca
Cathode
A
Anode

■ Block Diagram


M5218AP
IC301
HEADPHONES AMP
HEADPHONES
Rch
NF
SVI3101D
IC501
POWER AMP
Drive
Power
Short det.
Muting
Power on/off
Bias
SPEAKERS
JK201
Lch IN
A. GND
Q203
Muting drive
Q201(Q202)
MUTING
VR601
(VOLUME)
VOL. B
VOL. A
/MIC DET
MIC
VR401
(MIC VOLUME)
AN6558F
IC401
MIC AMP
D401
Q573
Switching control
Q571,572
Protector
For (GC) areas.
Q351-353,
Q361,362,371
Fan motor drive
FAN MOTOR
+B
D611
Q601
LED drive
D601
(POWER)
D602
(STANDBY)
D.GND
RLY
PWRSW/IJO
S601
(POWER)
Q354
SWITCHING
AC1
CT
AC2
F702
F701
D781,782
Q704
Relay drive
D783
RL701
F1
PT701
AC IN
For (E,EB,EG,GN) areas.
110/127/220/240V
S701
(VOLT. ADJ.)
For (GC) area.
D701-704
Q701,D715
Regulator
Q702,D716
Regulator
D705,706
D754
Notes:
1) ( ) indicates Pin No. of right channel.
2)
: SOURCE SIGNAL
: MIC SIGNAL

■ Replacement Parts List

Notes: •Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
•The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
•Remote Control Ass'y: Supply period for three years from termination of production.
•The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC301	M5218AP	I. C, HEADPHONE AMP.	
IC401	AN6558F	I. C, MIC AMP.	
IC501	SVI3101D	I. C, POWER AMP.	⚠
		TRANSISTOR(S)	
Q201, 202	2SD1450RTA	TRANSISTOR	
Q203	UN4115	TRANSISTOR	
Q351	2SC3311AIRTA	TRANSISTOR	(GC)
Q352	KSD471ACYGTA	TRANSISTOR	⚠(GC)
Q353	2SC3311AIRTA	TRANSISTOR	(GC)
Q354	2SC3311AIRTA	TRANSISTOR	
Q361	KSD471ACYGTA	TRANSISTOR	⚠(GC)
Q362	2SC3327ABTA	TRANSISTOR	⚠(GC)
Q371	2SC3311AIRTA	TRANSISTOR	(GC)
Q571, 572	2SC3311AIRTA	TRANSISTOR	
Q573	2SA1309AIQTA	TRANSISTOR	
Q601	UN4211	TRANSISTOR	
Q701	2SD2374PQAU	TRANSISTOR	⚠
Q702	2SB1548PQAU	TRANSISTOR	⚠
Q704	2SC3311AIRTA	TRANSISTOR	
		DIODE(S)	
D351	MA165TA	DIODE	(GC)
D352	MA4068MTA	DIODE	⚠(GC)
D361	MA4091MTA	DIODE	⚠(GC)
D362	MA165TA	DIODE	(GC)
D371	MA165TA	DIODE	(GC)
D372	MA165TA	DIODE	(GC)
D401	MA4062MTA	DIODE	
D601	SLR-305MC	LED	
D602	SLR-305VC	LED	
D611	MA4075MTA	DIODE	⚠
D701-704	1N5402BF	DIODE	⚠
D705, 706	RL1N4003N02	DIODE	⚠
D712	MA4240H	DIODE	
D715, 716	MA4150M	DIODE	⚠
D754	MA4051MTA	DIODE	⚠
D781, 782	MA165	DIODE	⚠
D783	MA4062MTA	DIODE	⚠
D784	MA4068M	DIODE	⚠
D785, 786	MA165	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
		VARIABLE RESISTOR(S)	
VR401	EVJ02BF01B14	V. R, MIC VOLUME CONTROL	
VR601	RRV16B24104B	V. R, MAIN VOLUME CONTROL	
		COIL(S)	
L501, 502	RLQYR73M	COIL	
L701	RLQZ271M	COIL	⚠(EG)
		FUSE(S)	
F1	XBA2C10TB0	FUSE, 250V T1. 0A	⚠(E, EB, EG, GN)
F1	XBA2C20TB0	FUSE, 250V T2. 0A	⚠(GC)
F2	XBA2C10TB0	FUSE, 250V T1. 0A	⚠(GC)
F701, 702	XBA2C16TB0	FUSE, 250V T1. 6A	⚠
		SWITCH(ES)	
S601	EVQ21405R	SW, POWER	
S701	ESE37263	SW, VOLTAGE ADJ.	⚠(GC)
		CONNECTOR(S)	
J704B	RJU057W004	SOCKET(4P)	(GC)
CN301	RJU057W004	SOCKET(4P)	
CN401	RJU057W004	SOCKET(4P)	
CN701-708	RJS1A1101T1	SOCKET(1P)	
CN709, 710	RJS1A1101T1	SOCKET(1P)	(E, EB, EG, GN)
CN712	RJS1A1101T1	SOCKET(1P)	(E, EB, EG, GN)
CN715	RJU057W004	SOCKET(4P)	(E, EB, EG, GN)
CN501-1-3	RJS1A6604	CONNECTOR(4P)	
CN703-1, 2	RJS1A6604	CONNECTOR(4P)	
CP301	RJT057W004-1	CONNECTOR(4P)	
CP401	RJT057W004-1	CONNECTOR(4P)	
CP715	RJT057W004-1	CONNECTOR(4P)	
		EARTH TERMINAL(S)	
E501	SNE1004-1	GND PLATE	
E701	SNE1004-1	GND PLATE	
		FUSE HOLDER(S)	
FC1-6	EYF52BC	FUSE HOLDER	

Ref. No.	Pa
FC7	EYF52
FC8	EYF52
RL701	RSY00
PT701	RTP2M
PT701	RTP2M
JK201	RJT06
JK301	RJJ37
JK351	SJT32
JK401	RJJ65
JK501	RJR00
JK701	SJS92
JK701	SJSD1
JK702	SJS70

emarks

EG, GN)

GN)

GN)

GN)

Ref. No.	Part No.	Part Name & Description	Remarks
FC7	EYF52BC	FUSE HOLDER	(GC)
FC8	EYF52BC	FUSE HOLDER	(GC)
		RELAY	
RL701	RSY0013M-0	RELAY	⚠
		TRANSFORMER(S)	
PT701	RTP2M5B002	POWER TRANSFORMER	⚠(E, EB, EG, GN)
PT701	RTP2M5E002	POWER TRANSFORMER	⚠(GC)
		JACK(S)	
JK201	RJT065K20	CONNECTOR(20P)	
JK301	RJJ37TN01-C	HEADPHONES JACK	
JK351	SJT3213	CONNECTOR(2P)	(GC)
JK401	RJJ65MA01	MIC JACK	
JK501	RJR0054M	SPEAKER TERMINAL	
JK701	SJS9236	AC INLET	⚠(E, EB, EG, GC)
JK701	SJSD16	AC INLET	⚠(GN)
JK702	SJS702-1	CONNECTOR(6P)	(GC)

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

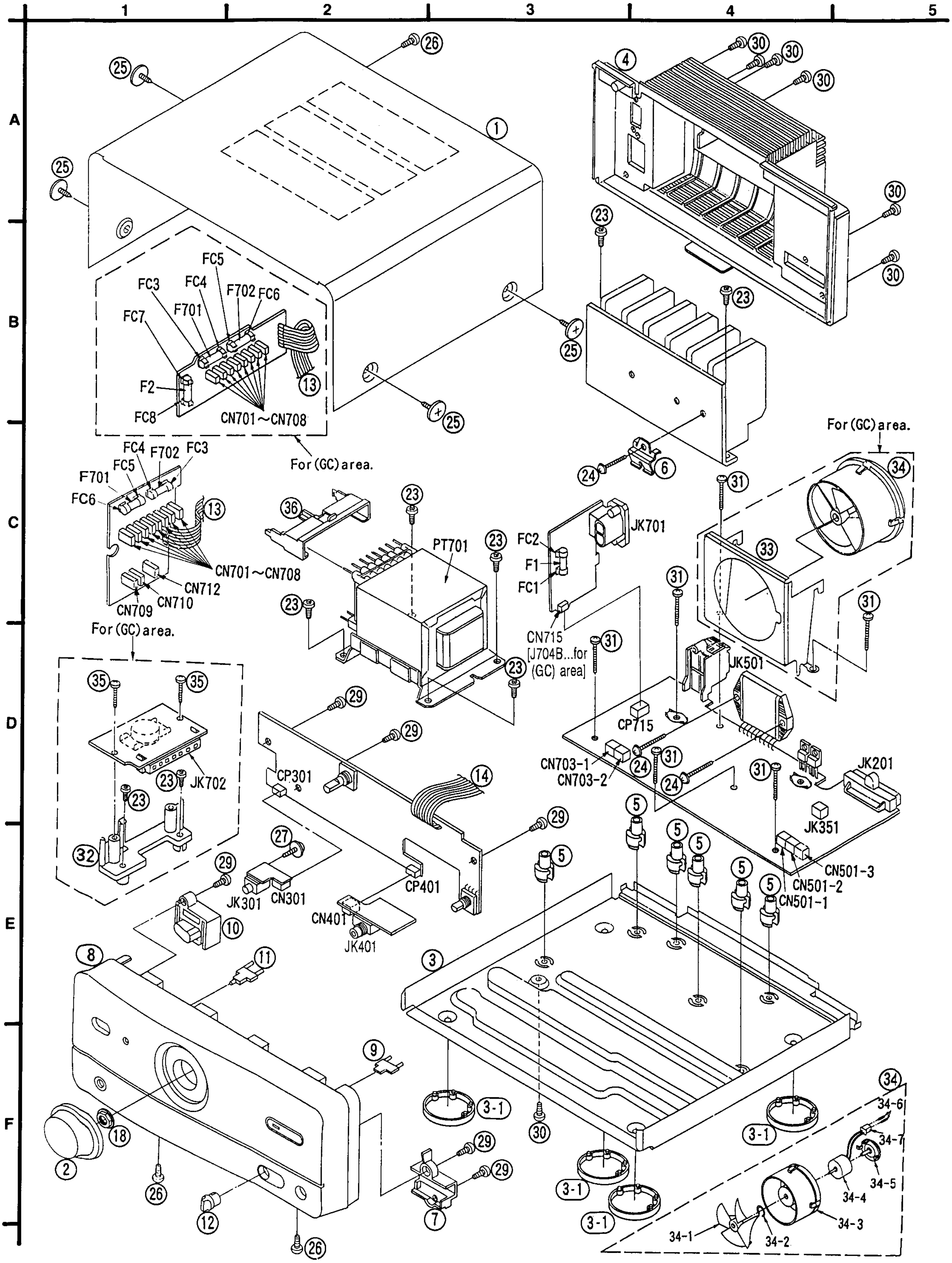
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R159	ERDS2TJ100	1/4W 10
R217, 218	ERDS2TJ102	1/4W 1K
R223, 224	ERDS2TJ122	1/4W 1.2K
R251	ERDS2TJ222	1/4W 2.2K
R253, 254	ERDS2EJ121	1/4W 120
R255	ERDS2TJ154	1/4W 150K
R256	ERDS2TJ105T	1/4W 1M
R259	ERDS2TJ561	1/4W 560
R291, 292	ERDS2TJ104	1/4W 100K
R301, 302	ERDS2TJ223	1/4W 22K
R303, 304	ERDS2TJ333	1/4W 33K
R305, 306	ERDS2TJ223	1/4W 22K
R307, 308	ERDS2TJ102	1/4W 1K
R309-312	ERDS2EJ121	1/4W 120
R351	ERDS2TJ183T	1/4W 18K (GC)
R352	ERDS2TJ473T	1/4W 47K (GC)
R353	ERDS2TJ103T	1/4W 10K (GC)
R354	ERDS2TJ104T	1/4W 100K (GC)
R355	ERDS2TJ103T	1/4W 10K (GC)
R356	ERDS2TJ332T	1/4W 3.3K (GC)
R357	ERDS1FVJ100T	1/2W 10 ⚠(GC)
R358	ERDS1FVJ220T	1/2W 22 ⚠(GC)
R359	ERDS2TJ273T	1/4W 27K (GC)
R360	ERDS2TJ222T	1/4W 2.2K (GC)
R361	ERDS2TJ474T	1/4W 470K (GC)
R362	ERDS2TJ102T	1/4W 1K (GC)
R363	ERDS2TJ103T	1/4W 10K (GC)
R364	ERDS2TJ103T	1/4W 10K (GC)
R371	ERDS2TJ273T	1/4W 27K (GC)
R372	ERDS2TJ273T	1/4W 27K (GC)
R373	ERDS2TJ222T	1/4W 2.2K (GC)
R374	ERDS2TJ273T	1/4W 27K (GC)
R375	ERDS2TJ822	1/4W 8.2K
R391	ERDS2TJ473	1/4W 47K
R401	ERDS2TJ122	1/4W 1.2K
R403	ERDS2TJ473	1/4W 47K
R404	ERDS2TJ123	1/4W 12K
R405	ERDS2TJ474	1/4W 470K
R406	ERDS2TJ102	1/4W 1K
R407	ERDS2TJ104	1/4W 100K
R408	ERDS2TJ473	1/4W 47K
R409	ERDS2TJ332	1/4W 3.3K
R410	ERDS2TJ102	1/4W 1K
R411	ERDS2TJ562	1/4W 5.6K
R412	ERDS2TJ102	1/4W 1K
R420	ERDS2TJ104	1/4W 100K

Ref. No.	Part No.	Values & Remarks
R501, 502	ERDS2TJ102	1/4W 1K
R503-506	ERDS2TJ563	1/4W 56K
R507, 508	ERDS2TJ182	1/4W 1.8K
R509, 510	ERDS2TJ102	1/4W 1K
R511	ERDS2TJ334	1/4W 330K
R512	ERDS2TJ154	1/4W 150K
R513	ERDS2TJ684	1/4W 680K
R514	ERD25FJ470	1/4W 47 ⚠
R515, 516	ERDS1FVJ100T	1/2W 10 ⚠
R517, 518	ERD25FVJ100T	1/4W 10 ⚠
R571	ERDS2TJ823T	1/4W 82K
R572	ERDS2TJ124T	1/4W 120K
R573	ERDS2TJ563	1/4W 56K
R574	ERDS2TJ564	1/4W 560K
R575	ERDS2TJ223	1/4W 22K
R601	ERDS2TJ331	1/4W 330
R602	ERDS2TJ391	1/4W 390
R701, 702	ERD25FJ2R2	1/4W 2.2 ⚠
R703, 704	ERDS2TJ562	1/4W 5.6K
R705	ERDS1FVJ103T	1/2W 10K ⚠
R709	ERDS1FVJ221T	1/2W 220 ⚠
R711	ERDS1FVJ221T	1/2W 220 ⚠
R716	ERDS2TJ392T	1/4W 3.9K
R717	ERDS2TJ473	1/4W 47K
R780	ERDS2TJ822	1/4W 8.2K
R781, 782	ERDS2TJ561	1/4W 560
		CAPACITORS
C251	RCE0JKA221BV	6.3V 220U
C301, 302	ECEA1HKA3R3B	50V 3.3U
C303, 304	ECBT1H150J5	50V 15P
C305, 306	ECBT1H330J5	50V 33P
C307, 308	ECEA1CKA220B	16V 22U
C353	ECEA1HKA2R2B	50V 2.2U (GC)
C361	ECEA1CKA470B	16V 47U (GC)
C362	ECEA1CKA100B	16V 10U (GC)
C371	RCE0JKA221BV	6.3V 220U (GC)
C372	ECBT1E223ZF5	25V 0.022U (GC)
C373	ECBT1H104ZF5	50V 0.1U (GC)
C381, 382	ECBT1E103ZF	25V 0.01U
C395, 396	ECBT1E223ZF	25V 0.022U
C397, 398	ECBT1E103ZF	25V 0.01U
C401	ECBT1H221KB5	50V 220P
C403	ECEA1HKA3R3B	50V 3.3U
C404	ECBT1H221KB5	50V 220P
C405	ECBT1H101KB5	50V 100P
C406	ECEA1CKA100B	16V 10U
C407	ECEA1HKA3R3B	50V 3.3U

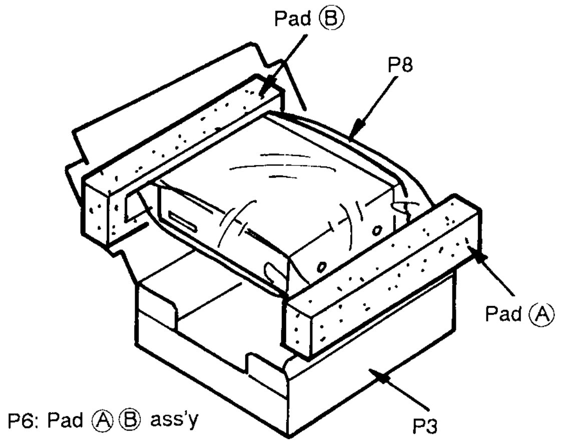
Ref. No.	Part No.	Values & Remarks
C408	ECBT1H181KB5	50V 180P
C409	ECEA1HKA010B	50V 1U
C410	ECBT1H221KB5	50V 220P
C411	ECBT1E103ZF	25V 0.01U
C412	ECBT1E223ZF	25V 0.022U
C414	ECA1AM331B	10V 330U
C415	ECBT1H102KB5	50V 1000P
C421	ECBT1H102KB5	50V 1000P
C501, 502	ECA1HAP3R3B	50V 3.3U
C503, 504	ECBT1H331KB5	50V 330P
C505, 506	ECBT1H150J5	50V 15P
C507, 508	ECBT1C152KR5	16V 1500P
C509, 510	ECEA1HKA3R3B	50V 3.3U
C511, 512	ECBT1C122KR5	16V 1200P
C513	ECA1HM470B	50V 47U
C514	ECA2AAP100B	100V 10U
C515, 516	ECBT1H104ZF5	50V 0.1U
C562	ECEA1HKN010B	50V 1U
C571	ECEA0JKA101B	6.3V 100U
C572	ECBT1E223ZF	25V 0.022U
C599	ECBT1C103MS5	16V 0.01U
C701, 702	ECA1HM222B	50V 2200U ⚠
C703, 704	ECEA1CKA330B	16V 33U
C705, 706	ECBT1H104ZF5	50V 0.1U
C707	RCE1HM221BV	50V 220U ⚠
C710	ECBT1E103ZF	25V 0.01U
C711	ECQE1104KF3	100V 0.1U
C712	ECBT1E223ZF	25V 0.022U
C714	ECKR1H103ZF5	50V 0.01U
C731, 732	ECKT1H102KB	50V 1000P
C781	ECEA1CKA100B	16V 10U
C799	ECBT1H104ZF5	50V 0.1U
C905, 906	ECBT1H101KB5	50V 100P
C1101, 1102	ECBT1E223ZF	25V 0.022U
C1103-1106	ECBT1H102KB5	50V 1000P

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS LIST	
1	RKM0265A-K	CABINET	
2	RGW0207-K	KNOB, MAIN VOLUME	
3	RFKJE1060EK	BOTTOM BOARD ASS'Y	(E, EB, EG, GN)
3	RFKJE1060GCK	BOTTOM BOARD ASS'Y	(GC)
3-1	RKA0011-3	FOOT	
4	RFKHECH510EB	REAR PANEL ASS'Y	(EB, GN)
4	RFKHECH510EG	REAR PANEL ASS'Y	(EG)
4	RFKHECH510GC	REAR PANEL ASS'Y	(GC)
4	RKF0376C-K	REAR GRILL ASS'Y	(E)
5	RKQ0089	P. C. B. SPACER	
6	RMC0158	TRANSISTOR HOLDER	
7	RMN0277	HOLDER	
8	RFKGECH510EK	FRONT PANEL ASS'Y	
9	RFKNECH510EA	PANEL LIGHT A	
10	RGU1077-K	BUTTON, POWER	
11	RFKNECH510EB	PANEL LIGHT B	
12	RGW0178-1K	KNOB, MIC VOLUME	
13	RWJ1808130XX	FLAT CABLE (8P) (W703)	(E, EB, EG, GN)
13	RWJ1808100XX	FLAT CABLE (8P) (J703)	(GC)
14	RWJ1812220QC	FLAT CABLE (12P) (W501)	
18	RHN90001	NUT	
23	XTB3+8JFZ	SCREW	
24	XTW3+15T	SCREW	
25	RHD30007	SCREW	
26	XTBS3+8JFZ1	SCREW	
27	RHD26016	SCREW	
29	XTBS26+10J	SCREW	
30	XTB3+10JFZ	SCREW	
31	XTB3+20JFZ	SCREW	
32	RMN0190	HOLDER	(GC)
33	RMN0282	FAN ANGLE	(GC)
34	SYE1128-4	FAN	(GC)
34-1	SHE232	FAN	(GC)
34-2	SUS271	SPRING	(GC)
34-3	SHE233-1	FAN CASE	(GC)
34-4	MDN-4RB4MRC	MOTOR	(GC)
34-5	SHE234	CAP	(GC)
34-6	SJT783	TERMINAL	(GC)
34-7	SJS5215	CONNECTOR (2P)	(GC)
35	XTB3+12JFZ	SCREW	(GC)
36	RMN0191	HOLDER	
		PACKING MATERIALS	
P1	RPG2146	PACKING CASE (SYSTEM)	(E, EG)
P1	RPG2147	PACKING CASE (SYSTEM)	(EB)
P1	RPG2148	PACKING CASE (SYSTEM)	(GC)
P1	RPG2150	PACKING CASE (SYSTEM)	(GN)
P2	RPG2231	PACKING CASE (DECK)	
P3	RPG2232	PACKING CASE (CD-TUNER)	
P4	RPG2230	PACKING CASE (AMPLIFIER)	
P5	RPN0815	PAD (DECK)	
P6	RPN0816	PAD (CD-TUNER)	
P7	RPN0817	PAD (AMPLIFIER)	
P8	SPP740	PROTECTION COVER	
P9	RPQF0047	ACCESSORIES BOX	
P10	RPQ0458	SPACER	
P11	XZB25X34C03Y	PROTECTION COVER	
		ACCESSORIES	
A1	RAK-CH144WH	REMOTE CONTROL TRANSMITTER	
A1-1	RKK0057-K	BATTERY COVER	
A2	REE0499	SPEAKER CORD	
A3	REX0511	FLAT CABLE (LONG TYPE)	
A4	REX0608	FLAT CABLE (SHORT TYPE)	
A5	RJA0019-2A	AC POWER SUPPLY CORD	⚠ (E, EG, GC) (SF)
A5	VJA0733	AC POWER SUPPLY CORD	⚠ (EB) (SF)
A5	RJA0036-K	AC POWER SUPPLY CORD	⚠ (GN)
A6	RFKSECH510EK	INSTRUCTION MANUAL	(E)
A6	RFKSECH510EB	INSTRUCTION MANUAL	(EB)
A6	RQT2591-E	INSTRUCTION MANUAL	(EG)
A6	RQT2590-G	INSTRUCTION MANUAL	(GC)
A6	RQT2589-B	INSTRUCTION MANUAL	(GN)
A7	RQX7433ZA	WARRANTY CARD	(GN)
A7	RQA0013	WARRANTY CARD	(E, EB, EG)
A8	RQCB0169	SERVICE CENTER LIST	
A9	RSA0007	FM INDOOR ANTENNA	
A10	RSA0012	AM LOOP ANTENNA	
A10-1	RMN0244	ANTENNA HOLDER	
A10-2	XTN2+12AFZ	SCREW	
A11	SJP9009	ATTACHMENT PLUG	(EB)
A12	SJP5213-2	POWER PLUG ADAPTOR	(GC)
A13	RFE0014	ANTENNA PLUG	(GC, GN)

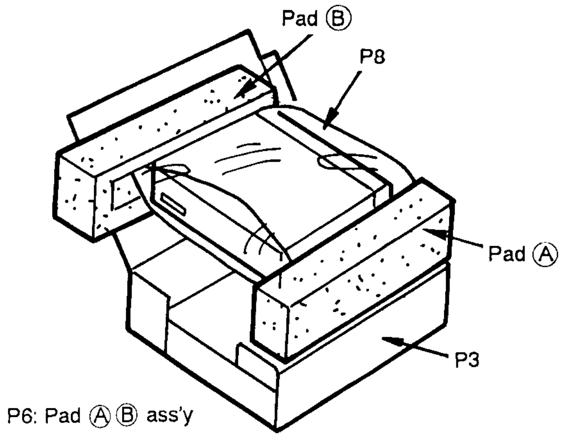
■ Cabinet Parts Location


1
2
3
4
5
A
B
C
D
E
F
㉖
㉕
①
④
㉚
㉚
㉚
㉚
㉚
㉚
㉓
㉓
㉕
㉕
㉕
FC5
FC3
FC4
F702
FC6
F701
FC7
F2
FC8
⑬
CN701～CN708
For (GC) area.
FC4
F702
FC3
FC5
F701
FC6
⑬
CN701～CN708
CN712
CN709
CN710
For (GC) area.
㉔
⑥
For (GC) area.
㉛
㉞
㊱
㉓
PT701
㉓
FC2
F1
FC1
JK701
㉝
㉛
㉛
㉓
㉓
CN715
[J704B...for (GC) area]
㉛
JK501
㉟
㉟
㉙
㉙
CP715
CN703-1
CN703-2
㉔
㉛
㉔
㉛
JK201
㉓
JK702
㉓
CP301
⑭
JK351
⑤
⑤
⑤
⑤
⑤
⑤
CN501-3
CN501-2
CN501-1
㉜
㉗
㉙
㉙
JK301
CN301
CP401
CN401
JK401
⑩
⑪
⑧
③
⑨
3-1
3-1
3-1
3-1
㉚
㉞
34-6
34-7
34-5
34-4
34-3
34-2
34-1
②
⑱
㉖
⑫
㉖
㉙
㉙
⑦

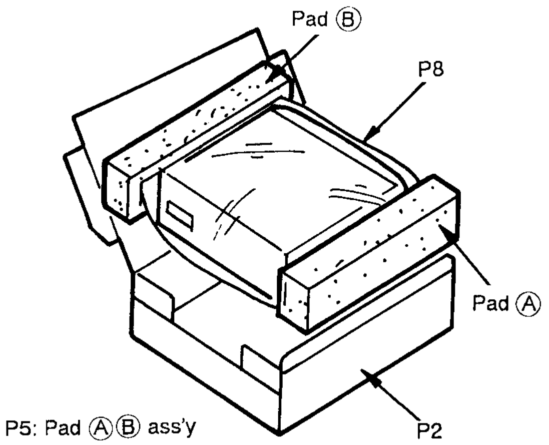
■ Packaging


Pad Ⓑ
P8
Pad Ⓐ
P6: Pad Ⓐ Ⓑ ass'y
P3

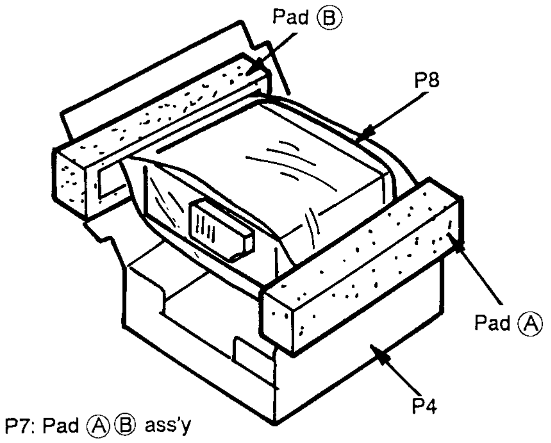
(SL-CH510: Compact disc player)


Pad Ⓑ
P8
Pad Ⓐ
P3
P6: Pad Ⓐ Ⓑ ass'y

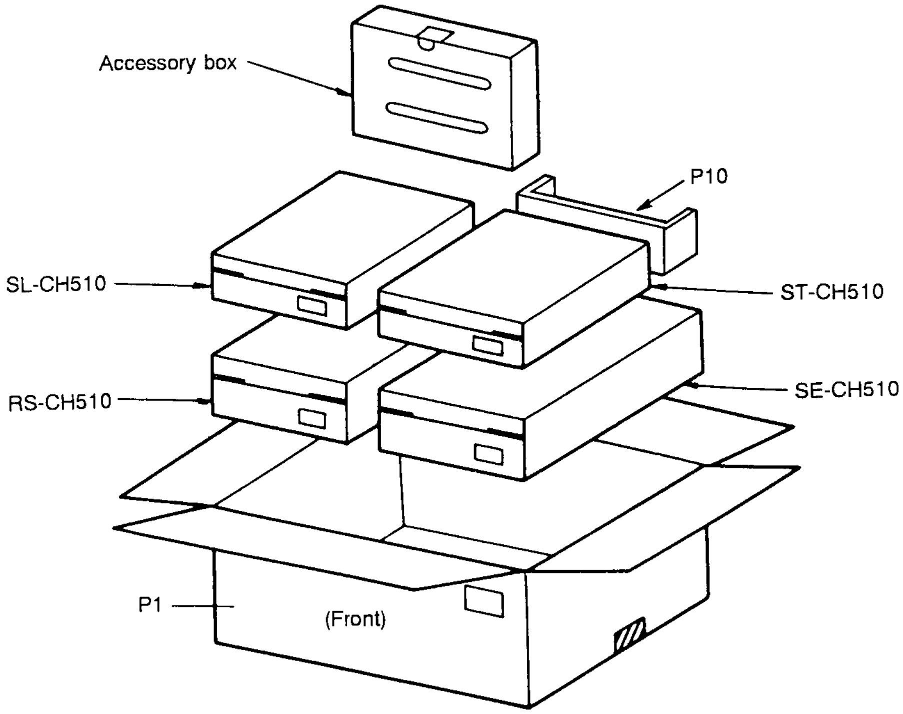
(ST-CH510: Tuner/sound processor)

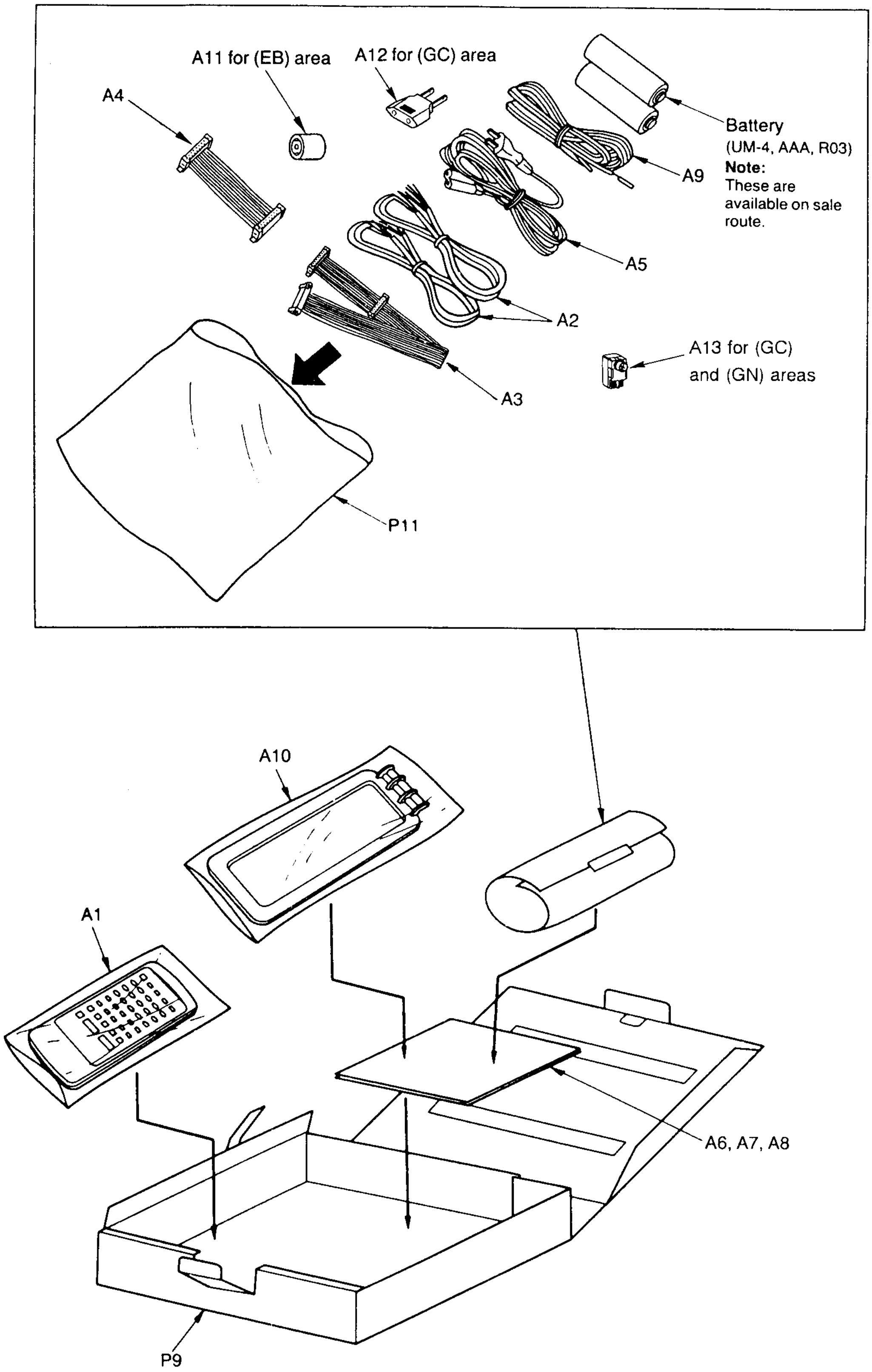

Pad Ⓑ
P8
Pad Ⓐ
P5: Pad Ⓐ Ⓑ ass'y
P2

(RS-CH510: Cassette deck)


Pad Ⓑ
P8
Pad Ⓐ
P4
P7: Pad Ⓐ Ⓑ ass'y

(SE-CH510: Amplifier)


Accessory box
P10
SL-CH510
ST-CH510
RS-CH510
SE-CH510
P1
(Front)


A11 for (EB) area
A12 for (GC) area
A4
Battery
(UM-4, AAA, R03)
A9
A5
A2
A13 for (GC)
and (GN) areas
A3
P11
A10
A1
A6, A7, A8
P9

Note:
These are available on sale route.

Printed in Japan
F940712000 TW/HH/TN

ORDER NO. AD9407191C8

Service Manual

Compact Disc Player
SL-CH510

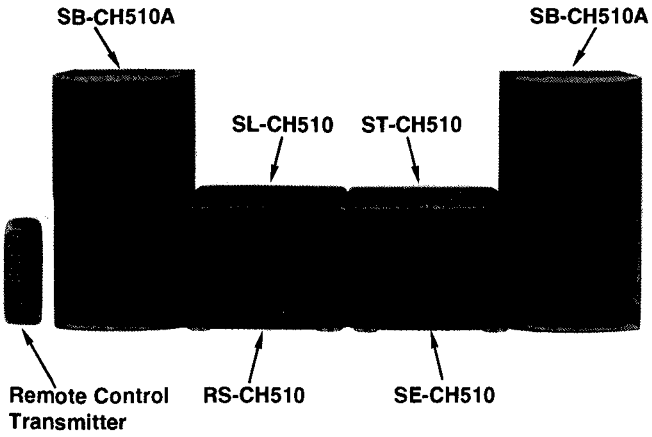
COMPACT disc DIGITAL AUDIO

DIGITAL

MASH*1
multi-stage noise shaping

Colour

(K) .... Black Type	



Area

Suffix for Model No.	Area	Colour
(E)	Europe, Asia, Latin America, Middle Near East and Africa and Oceania	(K)

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System: SC-CH510

RAE0113Z MECHANISM SERIES

Specifications

■ Audio

DA converter	1 bit 2 DAC MASH

■ Pickup

Wavelength	780 nm

■ General

Dimensions (W × H × D)	270 × 89 × 266 mm
Weight	1.9 kg

Notes:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

*1
MASH is a trademark of NTT.

System	Tuner/sound processor	Compact disc player	Amplifier	Cassette Deck	Speakers
SC-CH510	ST-CH510	**SL-CH510**	SE-CH510	RS-CH510	*2 SB-CH510A

*2: For Europe .... Made in PAES
For other areas .... Made in NABEL

Technics®

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- Handling Precautions for Traverse Deck 2
- Precaution of Laser Diode 2, 3
- Location of Controls 3
- Listening to Compact Discs 4
- Operation Check and Main Component Replacement Procedures .... 5~8
- Measurements and Adjustments 9, 10
- Schematic Diagram .... 11~16
- Printed Circuit Board Diagram .... 17~19
- Wiring Connection Diagram 20

Page

- Block Diagram .... 21~24
- About the Self-Diagnostic Mode 25
- Automatic Adjustment Results Display Function 26
- Troubleshooting Guide 27, 28
- Function of IC Terminals .... 29~32
- Replacement Parts List .... 33~36
- Cabinet Parts Location 37
- Loadiong Unit Parts Location 38

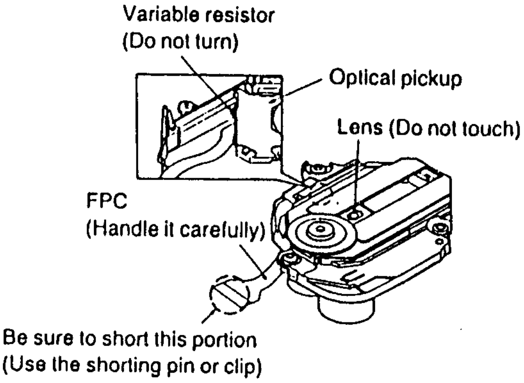
NOTE:
Refer to the service manual for Model No. SE-CH510 (ORDER No. AD9407197C8) for information on "Accessories", "Stacking the Components", "Connections" and "Packaging".

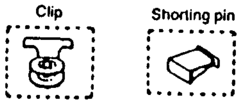
Handing Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

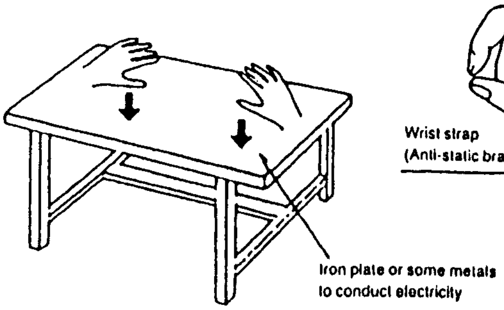


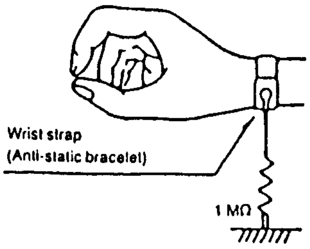


• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conducive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).


Iron plate or some metals to conduct electricity



Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μW/VDE

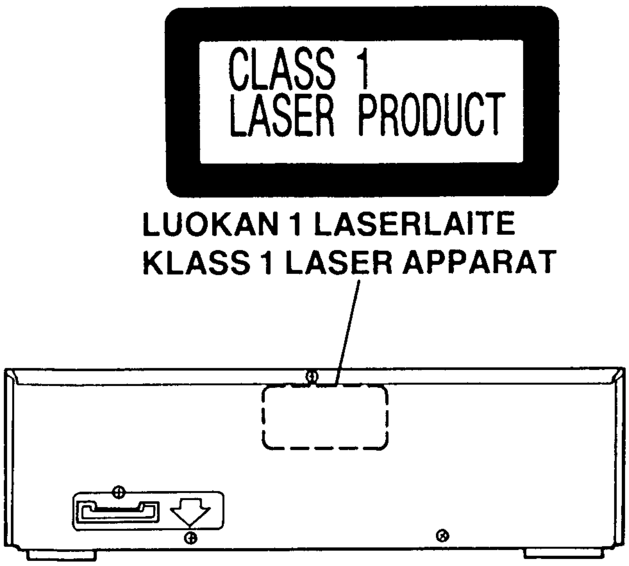
Laser radiation from the pick up unit is safety level, but be sure the followings:

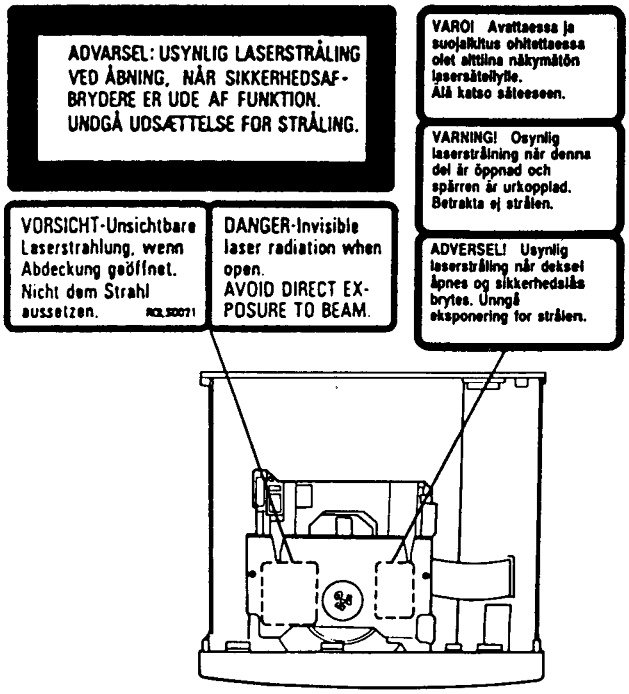
1. Do not disassemble the pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pick up unit. It was already adjusted.
3. Do not lock at the focus lens using optical instruments.
4. Recommend not to lock at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit adgestrahlt.
Wellenlänge: 780 nm
Maximale strahlungsleistung der laserinheit: 100 μW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.




ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen. RQLS0071

DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

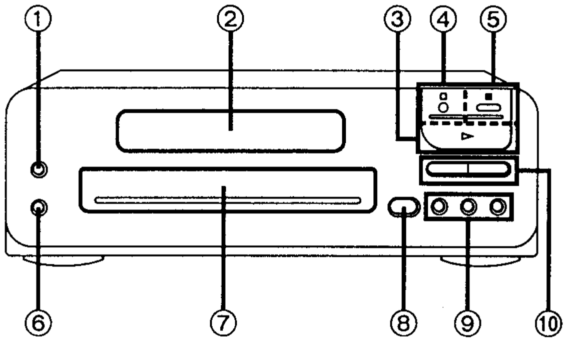
VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymätön lasersäteilylle. Älä katso säteeseen.

VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

ADVERSEL! Usynlig laserstråling når deksel åpnes og sikkerhedslås brytes. Unngå eksponering for strålen.

■ Location of Controls

① **Repeat button**
② **Display section**
③ **Play button and indicator**
④ **Stop button**
⑤ **Pause button**
⑥ **Random play button**
⑦ **Disc tray**
⑧ **Disc tray open/close button**
⑨ **CD edit button**
⑩ **Skip/search buttons**



■ Listening to Compact Discs

Sequential play

1. **Switch on the power.**
   "no dISC" indicates that a CD has not been installed.
2. **Press ▲ OPEN/CLOSE to open the tray.**
   Insert the CD with label facing upward.
   Do not put your finger through the hole in the middle of the tray. It could get caught when the tray closes.
   An adaptor for CD single is not required.
3. **Press ▲ OPEN/CLOSE to close the tray.**
   When there are 13 or more tracks on the CD, "⪢" will appear.
4. **Press ▷.**
   Press the button on the "▷" indicator to start play correctly.
   Play will start from the first track on the CD.
   Play will stop automatically when the last track on the CD finishes playing.
5. **Adjust the volume level as you like.**

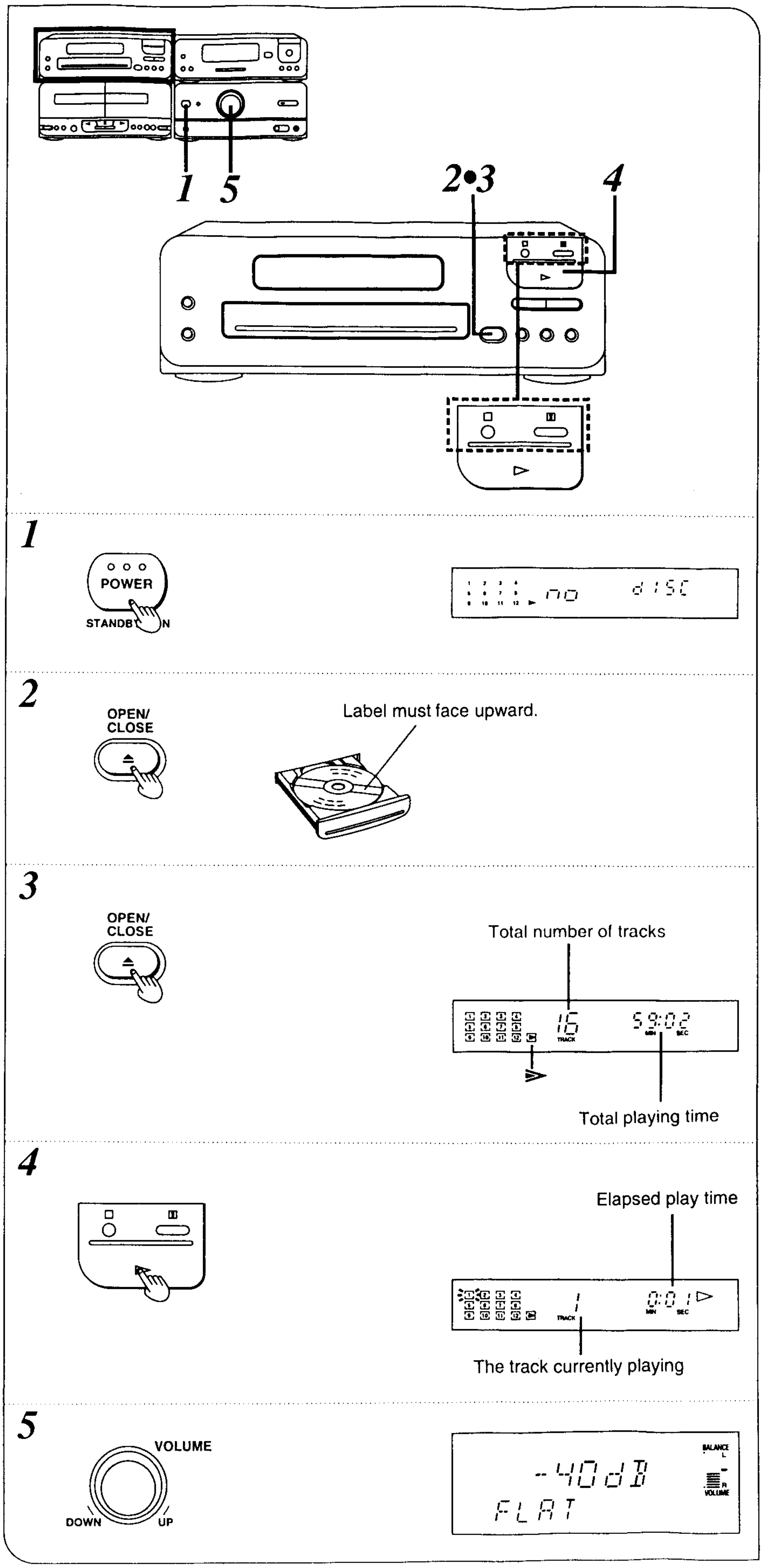
To stop the disc play:
Press □.

To temporarily stop the disc play:
Press ▯▯. ▷ flashes up green.
To play again, press ▷.

For your reference:
If you press ▷ instead of ▲ OPEN/CLOSE after inserting a CD, the tray will close and play will start directly from the track 1.

About ▷ indicator:
While halted: Lights up orange.
While playing: Lights up green.

About the total playing time:
The total playing time displayed includes the silent sections between tracks. Hence, there will be a difference between the total playing time and the liner notes.


1
5
2•3
4
1
POWER
STANDBY ON
no dISC
2
OPEN/ CLOSE
Label must face upward.
3
OPEN/ CLOSE
Total number of tracks
15
TRACK
59:02
MIN SEC
⪢
Total playing time
4
Elapsed play time
1
0:01 ▷
The track currently playing
5
VOLUME
DOWN
UP
-40dB
FLAT
BALANCE
VOLUME

■ Operation Check and Main Component Replacement Procedures

NOTE

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.
4. Illustrated screws are equivalent to actual size.
5. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

● Contents

Page

- **Checking Procedure for each P.C.B.**

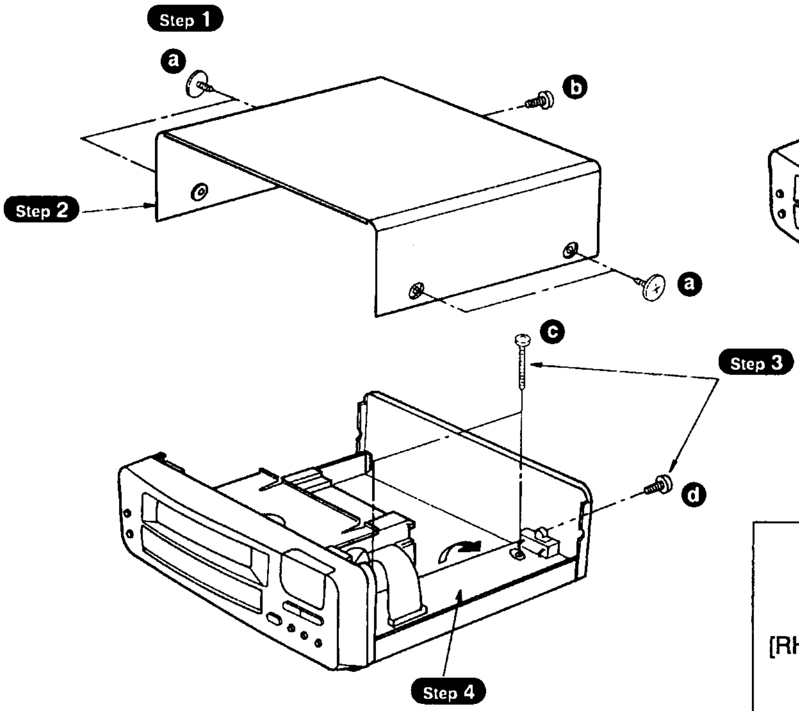
1. Checking for the main P.C.B. .... 5.
2. Checking for the operation P.C.B. and servo P.C.B. .... 6.

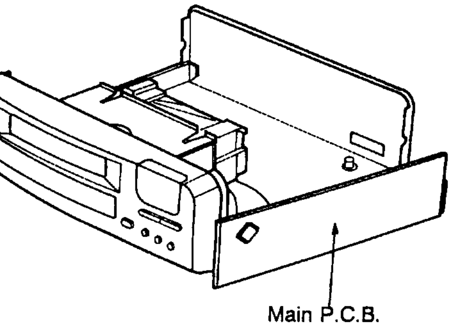
- **Main Component Replacement Procedures**

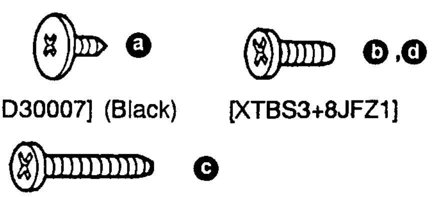
1. Replacement for the traverse deck ass'y .... 6∼8.
2. Replacement for the loading belt and loading motor .... 8.

■ Checking Procedure for each P.C.B.

1. Checking for the main P.C.B.



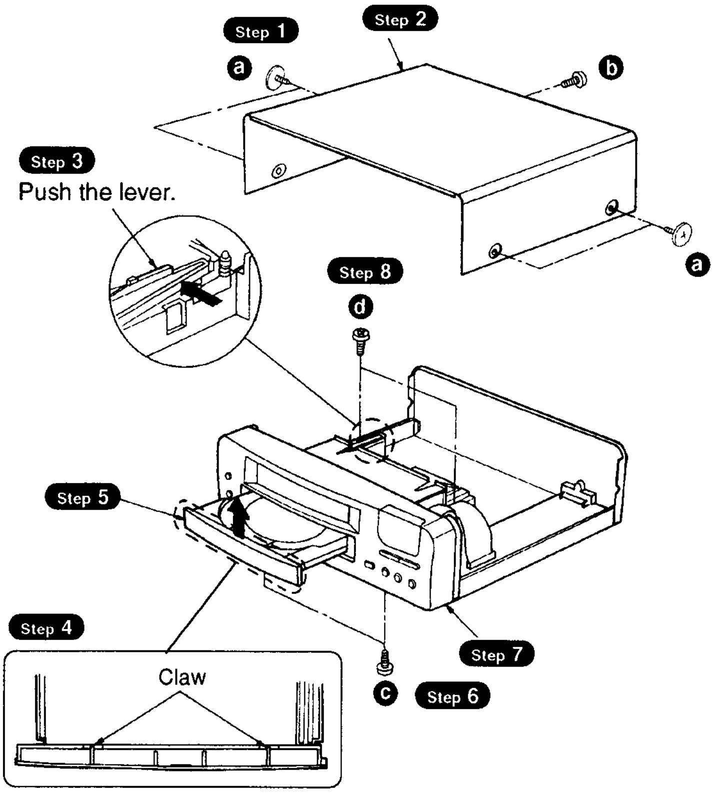


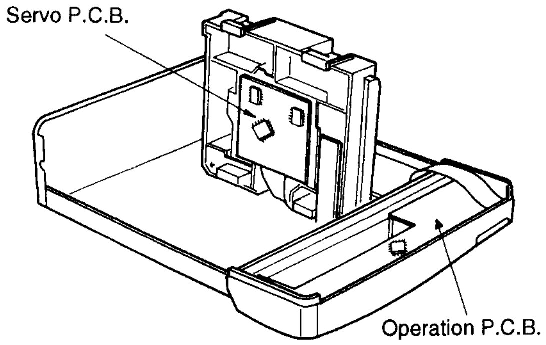


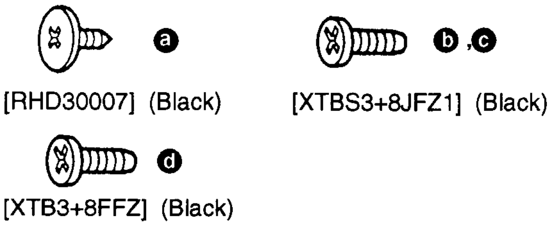
[RHD30007] (Black) [XTBS3+8JFZ1]

[XTB3+16JFZ] (Black)

2. Checking for the operation P.C.B. and the servo P.C.B.


Step 1
ⓐ
Step 2
ⓑ
Step 3
Push the lever.
Step 8
ⓓ
ⓐ
Step 5
Step 4
Claw
ⓒ
Step 6
Step 7

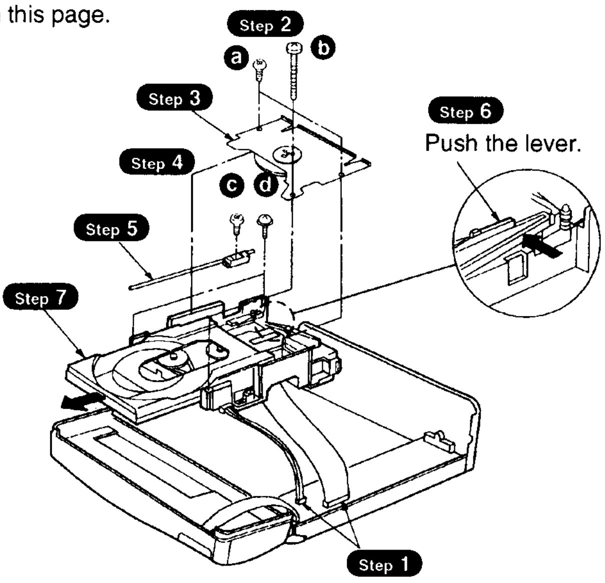

Servo P.C.B.
Operation P.C.B.

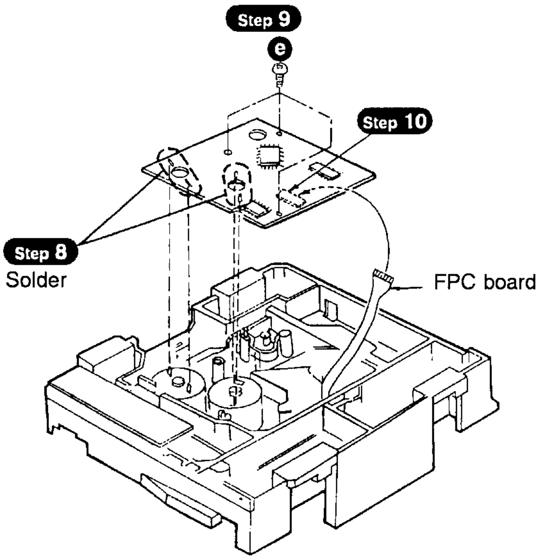

ⓐ
[RHD30007] (Black)
ⓑ,ⓒ
[XTBS3+8JFZ1] (Black)
ⓓ
[XTB3+8FFZ] (Black)

■ Main Component Replacement Procedures

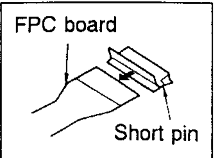
1. Replacement for the traverse deck ass'y

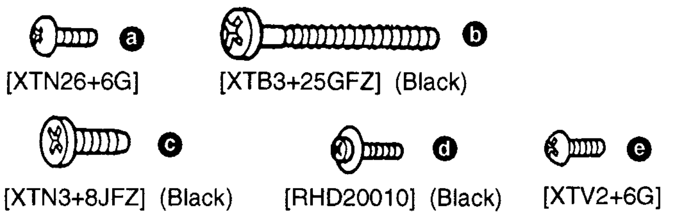
- Follow the item 2 in checking procedure for each P.C.B. on this page.

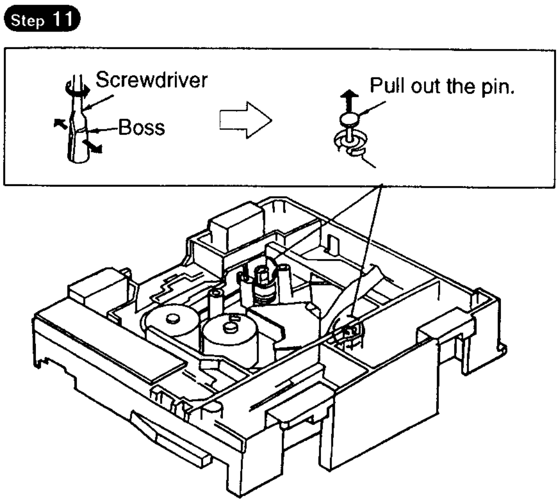

Step 2
ⓐ
ⓑ
Step 3
Step 4
ⓒ
ⓓ
Step 5
Step 6
Push the lever.
Step 7
Step 1

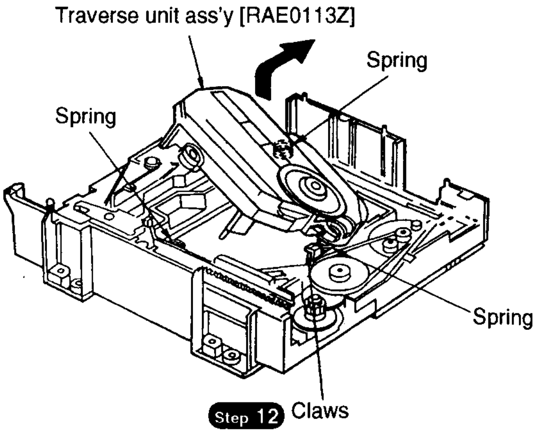

Step 9
ⓔ
Step 10
Step 8
Solder
FPC board

Caution:
Insert a short pin into the traverse unit FPC board.
(Refer to "Handling Precautions for Traverse Deck" on page 2.)


FPC board
Short pin


ⓐ
[XTN26+6G]
ⓑ
[XTB3+25GFZ] (Black)
ⓒ
[XTN3+8JFZ] (Black)
ⓓ
[RHD20010] (Black)
ⓔ
[XTV2+6G]

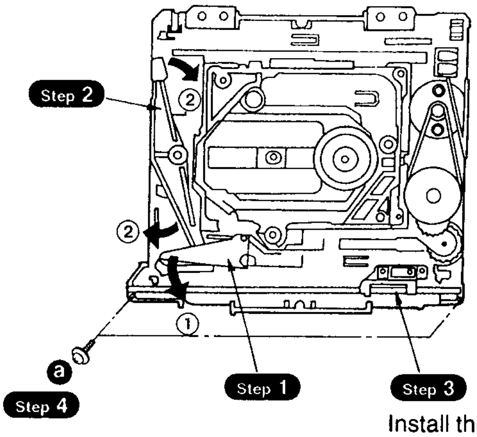

Step 11
Screwdriver
Boss
Pull out the pin.


Traverse unit ass'y [RAE0113Z]
Spring
Spring
Spring
Step 12
Claws

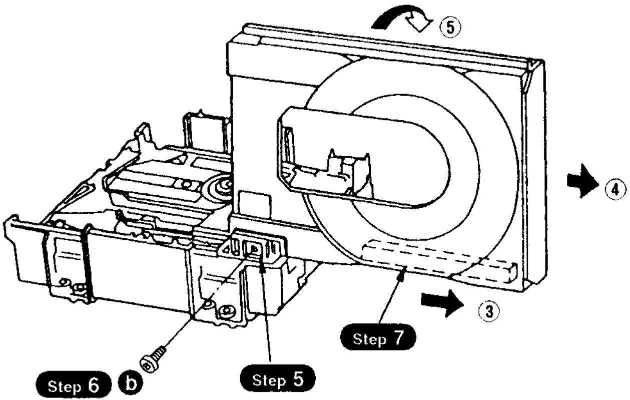
NOTE

Be careful not to lose the 3 springs because those will also be removed on removal of the traverse unit ass'y.

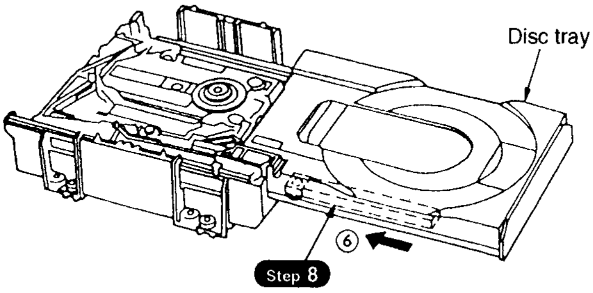
Installation of the disc tray after replacement


Step 2
②
②
①
ⓐ
Step 4
Step 1
Step 3

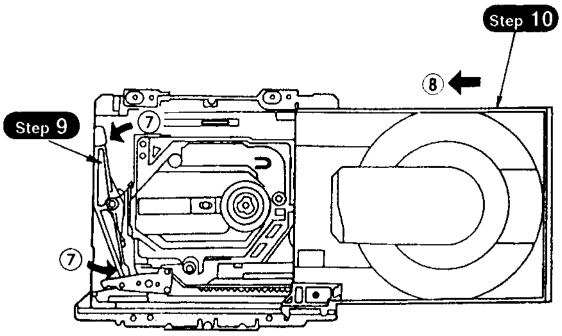
Install the guide shaft and guide shaft holder.


⑤
④
③
Step 7
Step 6
ⓑ
Step 5

Install the disc tray.


Disc tray
⑥
Step 8

Hold the disc tray and slide the drive gear (2).

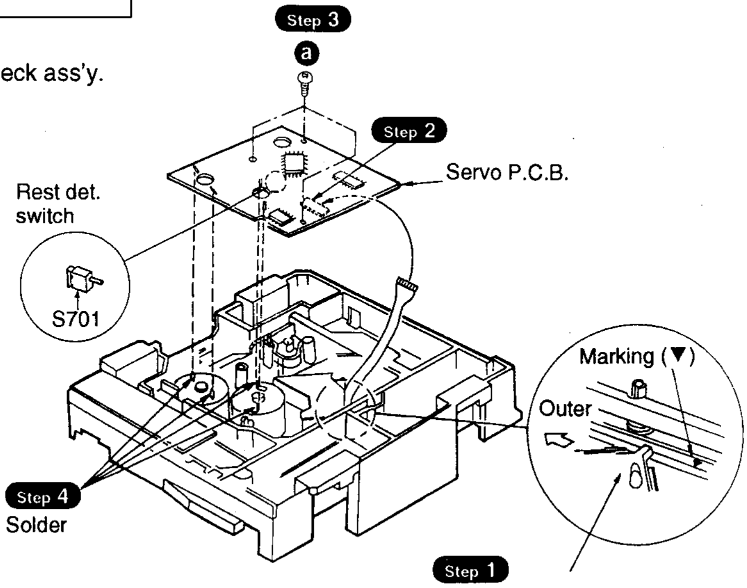

Step 10
⑧
Step 9
⑦
⑦

[RHD20010] (Black) [XTN3+8JFZ] (Black)

Installation of the servo P.C.B. after replacement

Step 1 Install the servo P.C.B. in the traverse deck ass'y.

Before installing the servo P.C.B., move the optical pickup toward the outer edge from the mark "▼".
[Otherwise, the rest detect switch (S701) mounted on the servo P.C.B. may be damaged.]

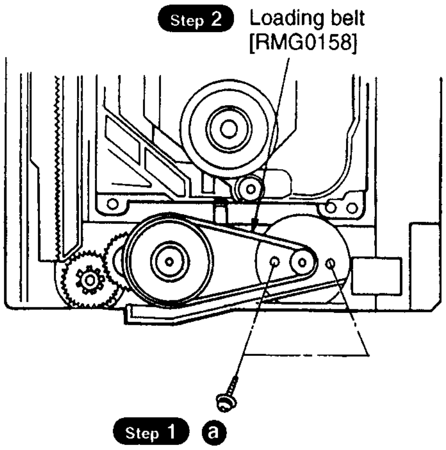

Step 3
a
Step 2
Servo P.C.B.
Rest det. switch
S701
Marking (▼)
Outer
Step 4
Solder

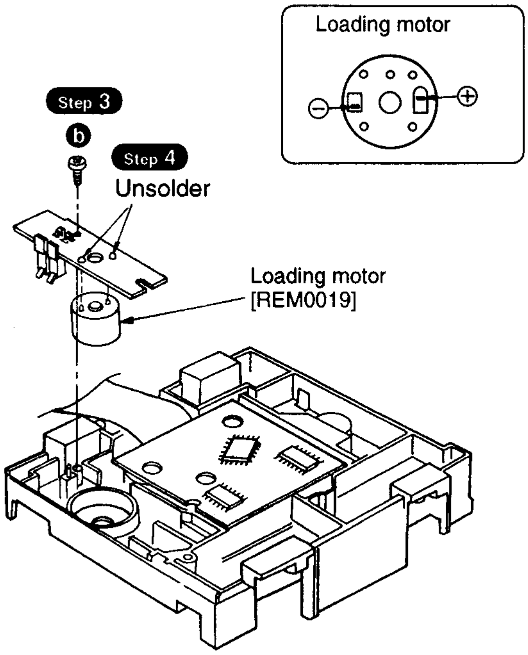
Step 1 Install the optical pickup toward the outer edge from the mark "▼".

[XTV2+6G]

2. Replace for the loading belt and loading motor

- Follow the item 2 in checking procedure for each P.C.B. on page 6.
- Follow the **Step 1** ~ **Step 7** of item 1 in main component replacement procedures on page 6.


Step 2
Loading belt
[RMG0158]
Step 1
a


Loading motor
⊖
⊕
Step 3
b
Step 4
Unsolder
Loading motor
[REM0019]

[XYN2+F6FZ]

[XTN26+6G]

■ Measurements and Adjustments

Cautions:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens.
- Avoid exposure to the laser beam, especially when performing adjustments.

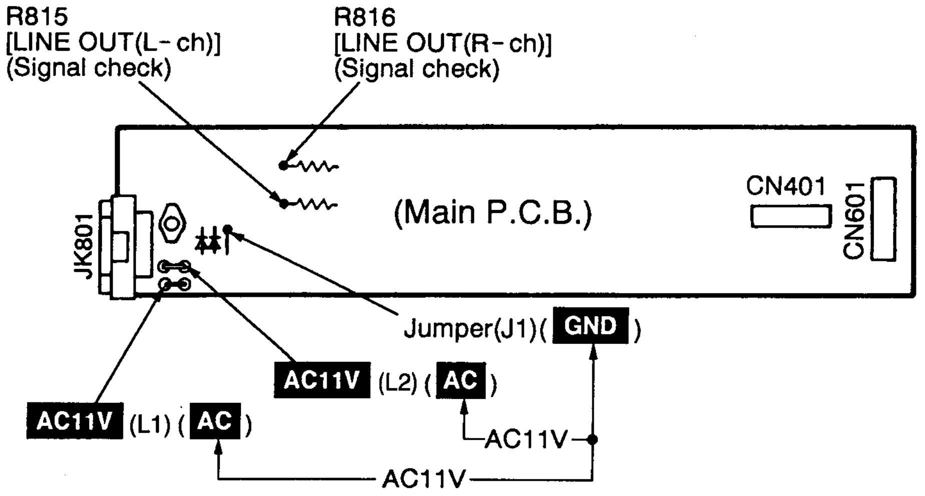
This unit SL-CH510 is designed to operate on power supplied from the Amplifier SE-CH510 through the Tuner/Sound Processor ST-CH510.
When connecting the unit to other system components, do not connect to the Amplifier SE-CH510 directly. Be sure to connect this unit through the Tuner/Sound Processor ST-CH510.
When operating the unit SL-CH510 alone for testing and servicing, without having power supplied from the Amplifier SE-CH510 and the Tuner/Sound Processor ST-CH510, use the following method.

Power Supply to This Unit alone

Apply 11V AC power to the section between AC11V (AC) of the coil (L1) and the jumper J1 (GND) as well as the section between AC11V (AC) of the coil (L2) and the jumper J1 (GND). (10V AC power can be also applied when using power supply tool.) **(Shown in Fig. 1)**

To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (Lch) of the resistor R815 and the GND point of the jumper J1 as well as the section between LINE OUT (Rch) of the resistor R816 and the GND point of the jumper J1 and check if the signals are outputting from this unit. **(Shown in Fig. 1)**



(Apply 10 V AC power when using power supply tool.)

Fig. 1

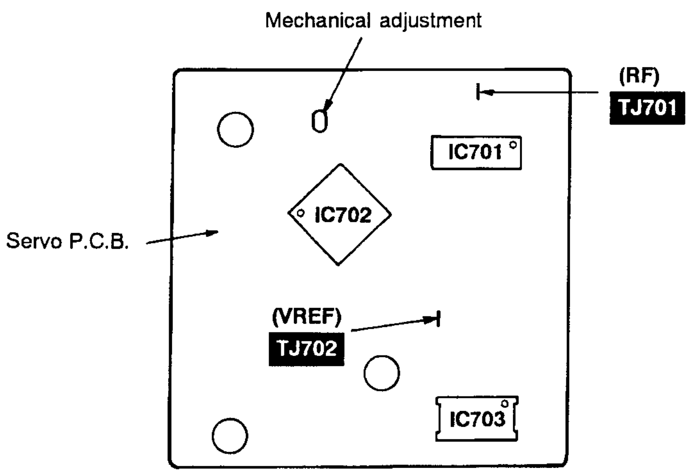
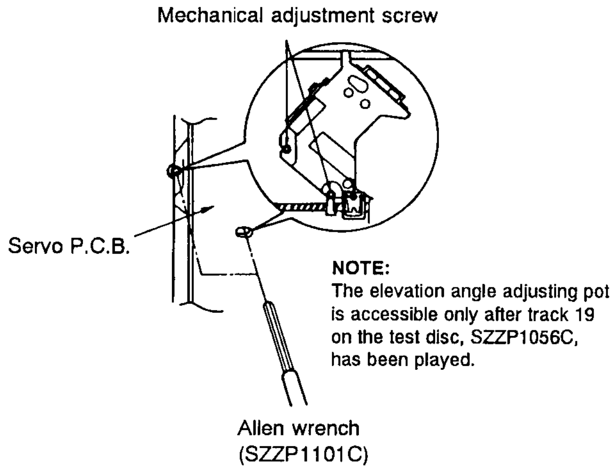


Fig. 2



NOTE:
The elevation angle adjusting pot is accessible only after track 19 on the test disc, SZZP1056C, has been played.

Fig. 3

● Preparation of Adjustment

1. Insert test disc into the unit.
2. Turn the power of this unit off and then turn it on. (The CD unit is adjusted automatically with it stood.)

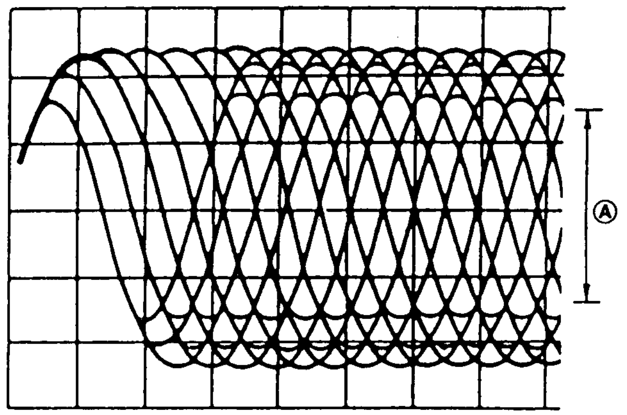
Measuring Instruments and Special Tools

- Test disc
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
- Allen wrench (M2.0) (SZZP1101C)
- Oscilloscope

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability when the traverse deck has not been replaced. Make the electrical adjustments first.

1. Connect the oscilloscope's CH. 1 probe across TJ701 (+) and TJ702 (VREF) on the Servo P.C.B. (Shown in Fig. 2)
   Oscilloscope setting:
   VOLT .... 200 mV
   SWEEP .... 0.5 μsec
   Input coupling .... AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) unit the RF signal amplitude on the oscilloscope is maximize. (Shown in Fig. 3)
5. After completing the adjustment, lock the mechanical adjustments with lock paint (RZZ0L01).

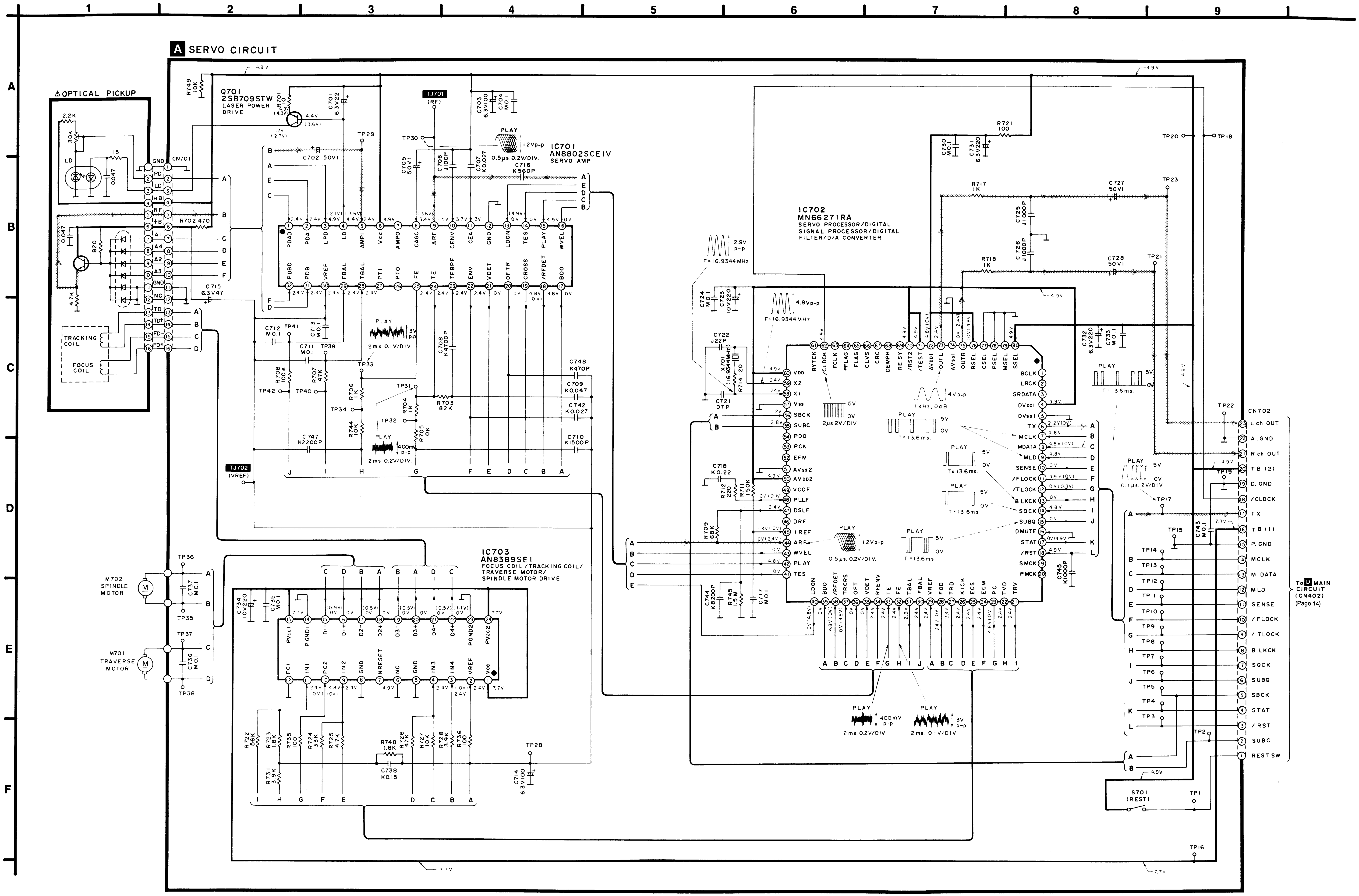


Ⓐ **Maximize the amplitude.**

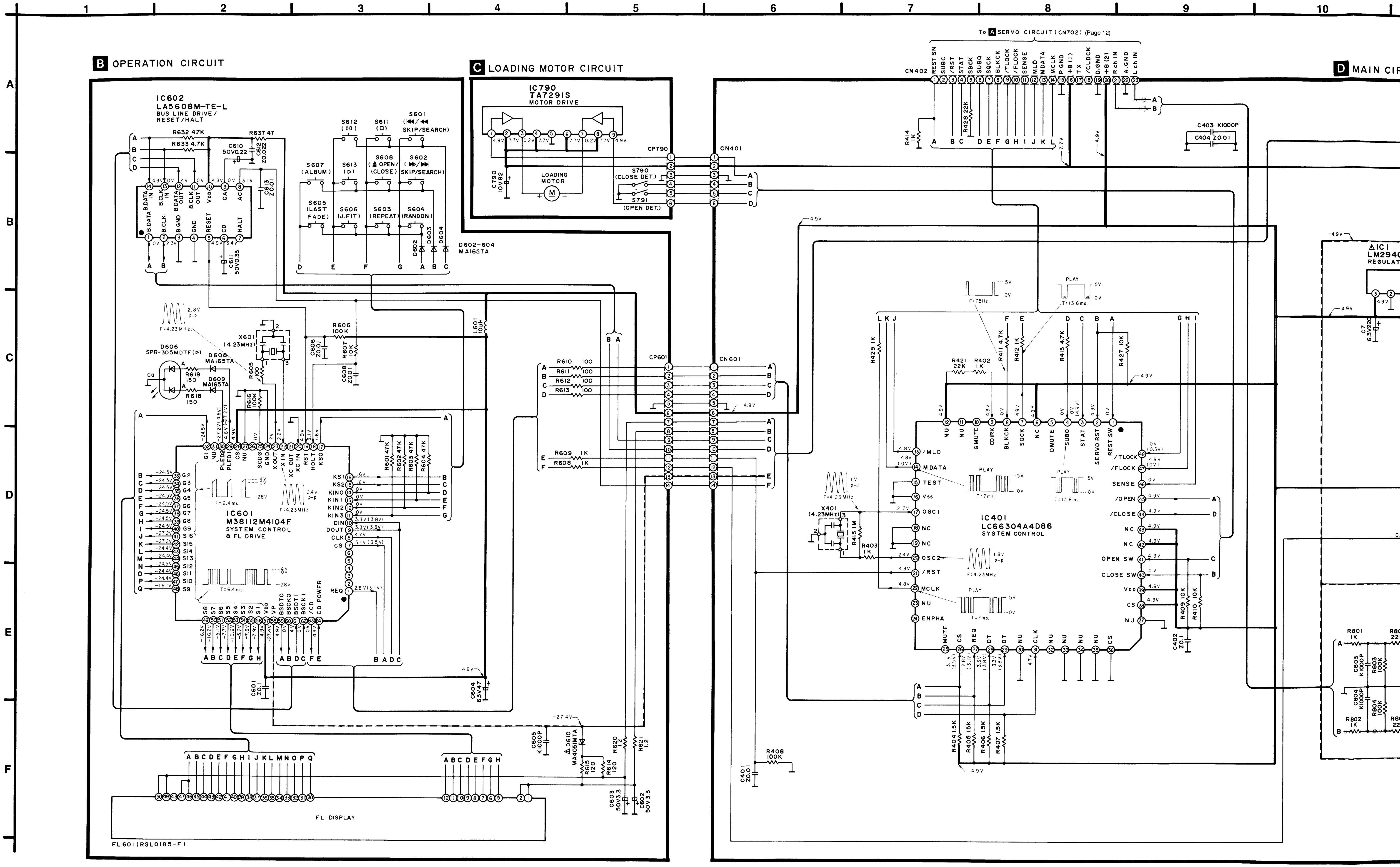
(2) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

- Checking Skip Search
  1. Play an ordinary musical program disc.
  2. Press the skip button to check for normal skip search operation (in both the forward and reverse direction).
- Checking Manual Search
  1. Play an ordinary musical program disc.
  2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).
- Checking playability
  1. Play the 0.7 mm black dot and the 0.7 mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
  2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

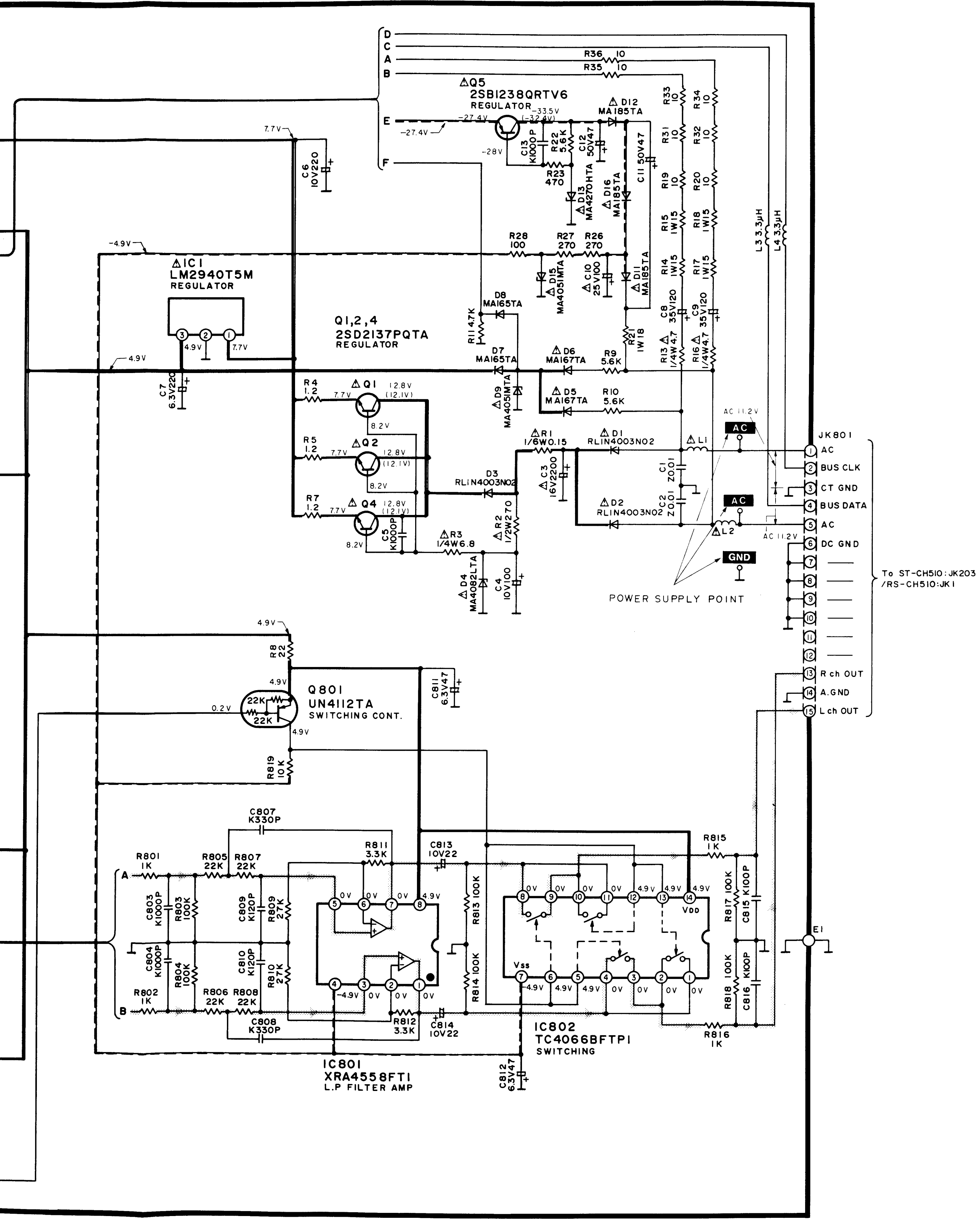
■ Schematic Diagram ● Optical Pickup/Servo circuit (Parts list on Pages 33～35)


A SERVO CIRCUIT
△OPTICAL PICKUP
CN701
Q701 2SB709STW LASER POWER DRIVE
TJ701 (RF)
TJ702 (VREF)
IC701 AN8802SCEIV SERVO AMP
IC702 MN66271RA SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/DIGITAL FILTER/D/A CONVERTER
IC703 AN8389SEI FOCUS COIL/TRACKING COIL/TRAVERSE MOTOR/SPINDLE MOTOR DRIVE
TRACKING COIL
FOCUS COIL
M702 SPINDLE MOTOR
M701 TRAVERSE MOTOR
X701 (16.9344MHz)
F=16.9344MHz
S701 (REST)
CN702
To D MAIN CIRCUIT (CN402) (Page 14)
L ch OUT
A.GND
R ch OUT
+B (2)
D.GND
/CLDCK
TX
+B (1)
P.GND
MCLK
M DATA
MLD
SENSE
/FLOCK
/TLOCK
B LKCK
SQCK
SUBQ
SBCK
STAT
/RST
SUBC
REST SW
PLAY
4.9V
7.7V
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

● Loading Motor/ Operation/ Main circuit (Parts list on Pages 33~35)


B OPERATION CIRCUIT
C LOADING MOTOR CIRCUIT
D MAIN CIR
To A SERVO CIRCUIT (CN702) (Page 12)
IC602
LA5608M-TE-L
BUS LINE DRIVE/ RESET/HALT
IC790
TA7291S
MOTOR DRIVE
LOADING MOTOR
S790 (CLOSE DET.)
S791 (OPEN DET.)
C790 10V82
CP790
CN401
CN402
S601 (⏮/◀◀ SKIP/SEARCH)
S602 (▶▶/⏭ SKIP/SEARCH)
S603 (REPEAT)
S604 (RANDON)
S605 (LAST FADE)
S606 (J.FIT)
S607 (ALBUM)
S608 (▲ OPEN/ (CLOSE)
S611 (□)
S612 (OO)
S613 (▷)
D602-604 MA165TA
D606 SPR-305MDTF(▷)
D608 MA165TA
D609 MA165TA
X601 (4.23MHz)
IC601
M38112M4104F
SYSTEM CONTROL & FL DRIVE
L601 10μH
CP601
CN601
FL DISPLAY
FL601 (RSL0185-F)
D610 MA4051MTA
IC401
LC66304A4D86
SYSTEM CONTROL
X401 (4.23MHz)
ΔIC1
LM2940
REGULAT
F=4.23MHz
T=6.4ms
T=7ms
T=13.6ms
F:75Hz

D MAIN CIRCUIT(SYSTEM CONTROL/L.P. FILTER AMP/SWITCHING/REGULATOR)



ΔQ5
2SB1238QRTV6
REGULATOR
ΔD12
MA185TA
ΔIC1
LM2940T5M
REGULATOR
Q1,2,4
2SD2137PQTA
REGULATOR
ΔQ1
ΔQ2
ΔQ4
D3
RLIN4003NO2
ΔR1
1/6W0.15
ΔD1
RLIN4003NO2
ΔD2
RLIN4003NO2
ΔL1
ΔL2
L3 3.3μH
L4 3.3μH
AC
GND
POWER SUPPLY POINT
JK801
1 AC
2 BUS CLK
3 CT GND
4 BUS DATA
5 AC
6 DC GND
13 R ch OUT
14 A.GND
15 L ch OUT
To ST-CH510:JK203
/RS-CH510:JK1
Q801
UN4112TA
SWITCHING CONT.
IC801
XRA4558FT1
L.P FILTER AMP
IC802
TC4066BFTP1
SWITCHING
VDD
Vss
E1

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S601** : R. Skip/Search switch (⏮/◀◀)
- **S602** : F. Skip/Search switch (▶▶/⏭)
- **S603** : Repeat switch (REPEAT)
- **S604** : Random play switch (RANDOM)
- **S605** : AI edit (LAST FADE) switch
- **S606** : AI edit (J.FIT) switch
- **S607** : AI edit (ALBUM) switch
- **S608** : Disc tray open/close switch (⏏ OPEN/CLOSE)
- **S611** : Stop switch (□)
- **S612** : Pause switch (▯▯)
- **S613** : Play switch (▷)
- **S701** : Reset switch
- **S790** : Disc tray close detection switch
- **S791** : Disc tray open detection switch
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : CD STOP
  ( ) : CD PLAY [1kHz, L + R, 0 dB]

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

- **Voltage and signal line**
  ━━━━ : Positive voltage line
  — — — — : Negative voltage line
  ░░░▶░░░ : CD signal Line

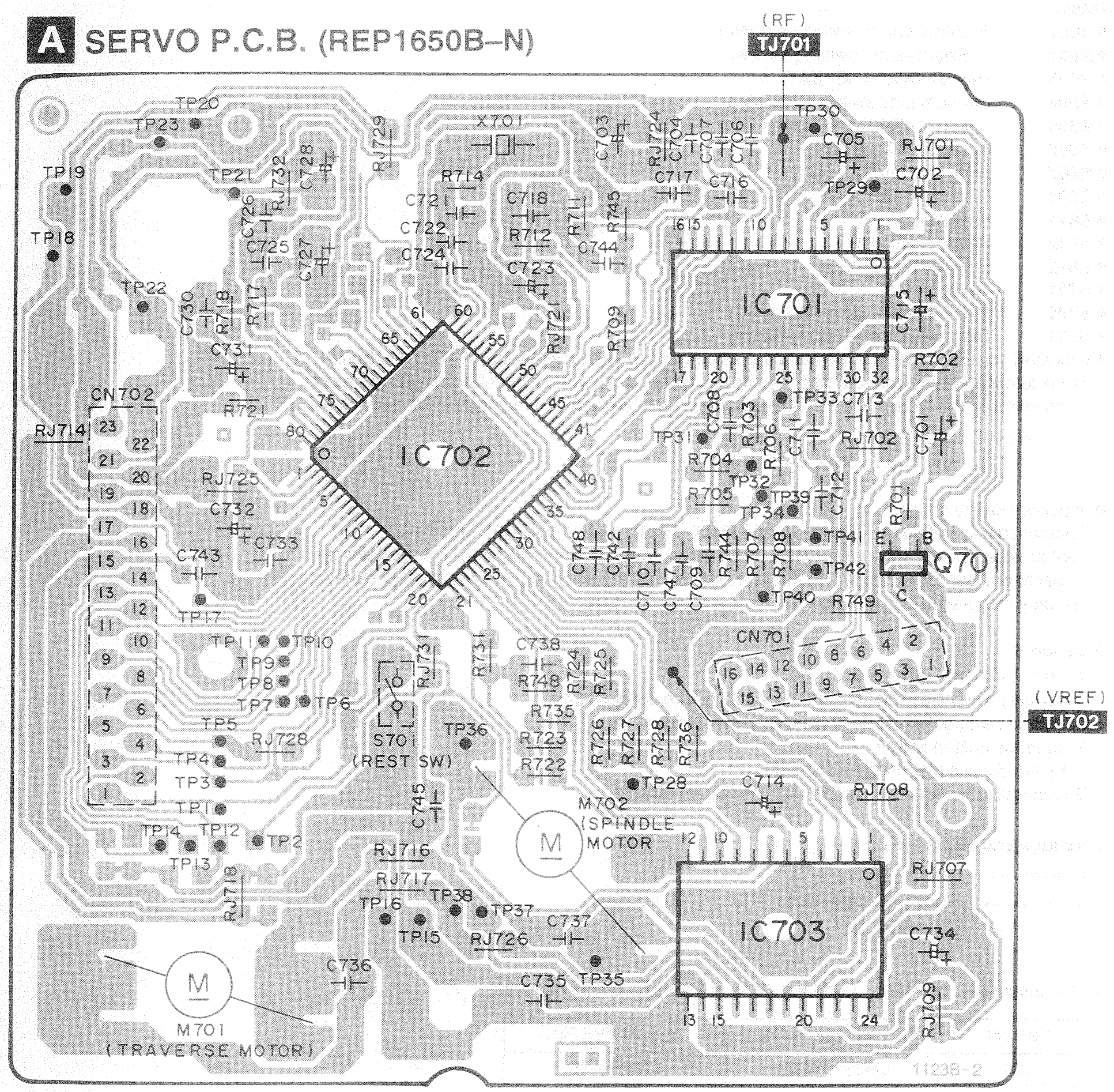
- The supply part number is described alone in the replacement parts list.

Part No.	Production Part No.	Supply Part No.
IC1	LM2940T5M	LM2940T5

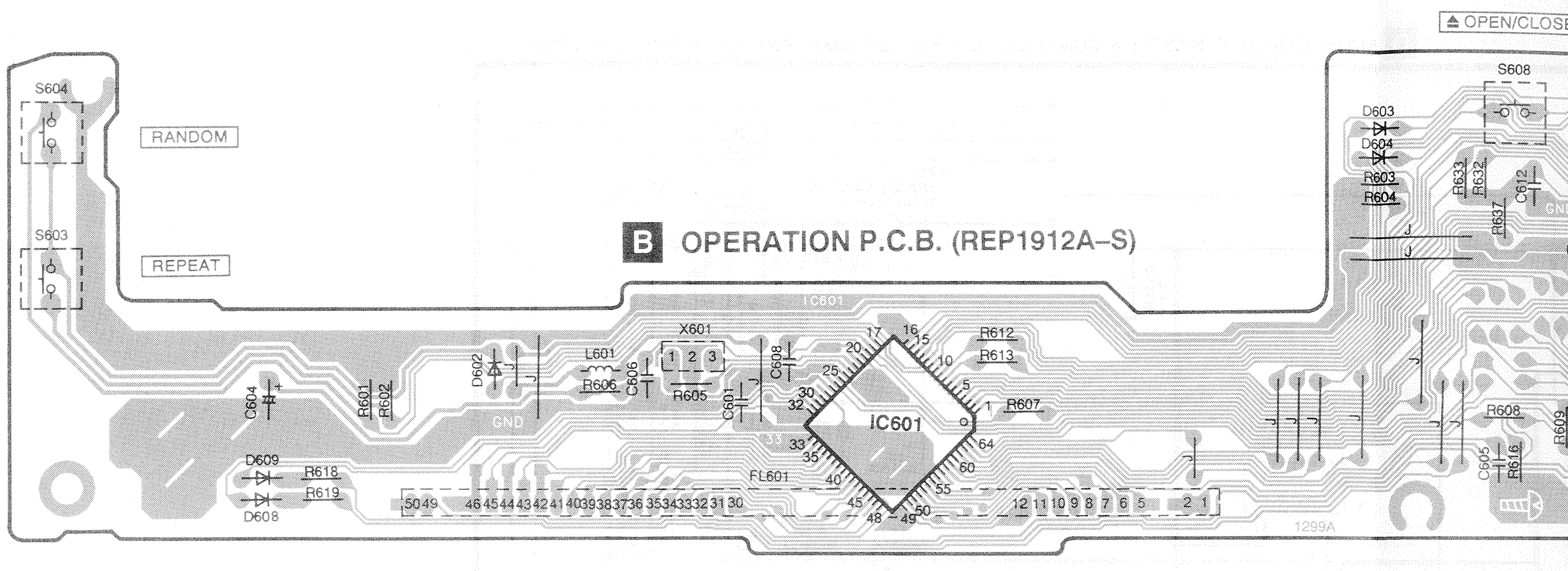
Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

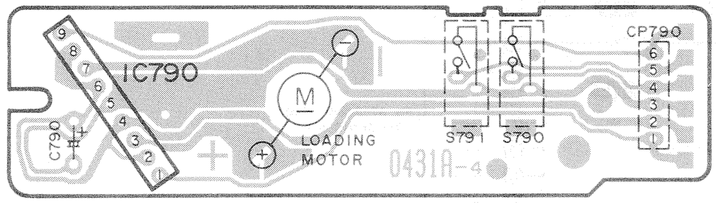
A SERVO P.C.B. (REP1650B–N)


(RF)
TJ701
(VREF)
TJ702
IC701
IC702
IC703
Q701
X701
CN701
CN702
S701 (REST SW)
M702 (SPINDLE MOTOR)
M701 (TRAVERSE MOTOR)
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
TP28
TP29
TP30
TP31
TP32
TP33
TP34
TP35
TP36
TP37
TP38
TP39
TP40
TP41
TP42
RJ701
RJ702
RJ707
RJ708
RJ709
RJ714
RJ716
RJ717
RJ718
RJ721
RJ724
RJ725
RJ726
RJ728
RJ729
RJ731
RJ732
1123B-2

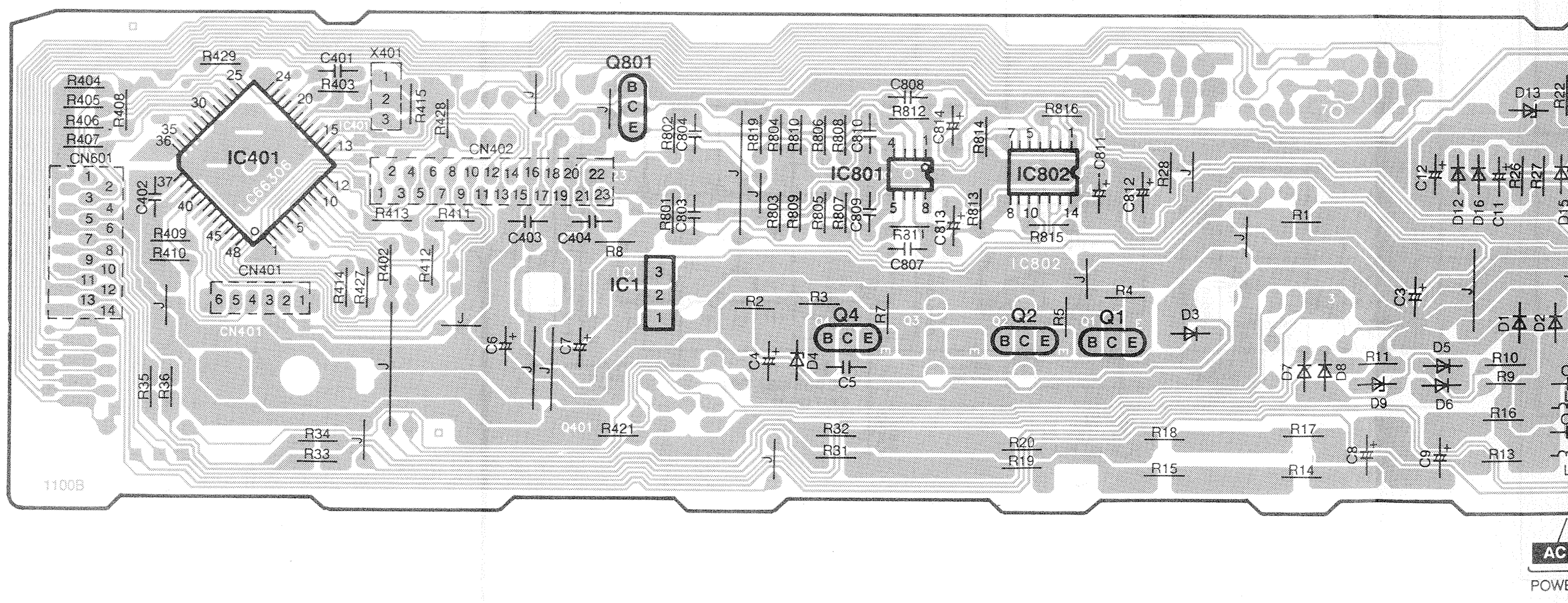
B OPERATION P.C.B. (REP1912A–S)

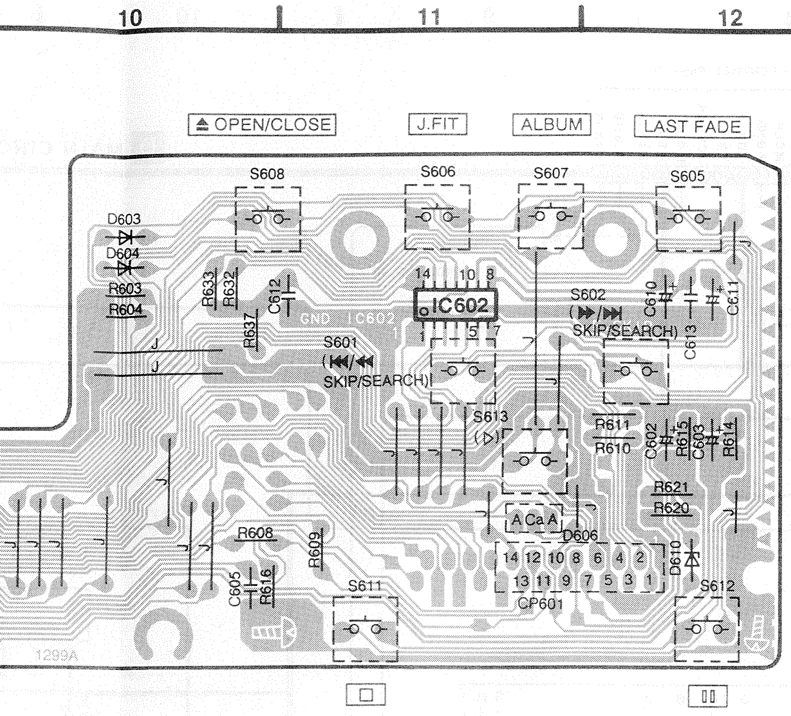

OPEN/CLOSE
RANDOM
REPEAT
S603
S604
S608
IC601
X601
L601
FL601
D602
D603
D604
D608
D609
1299A

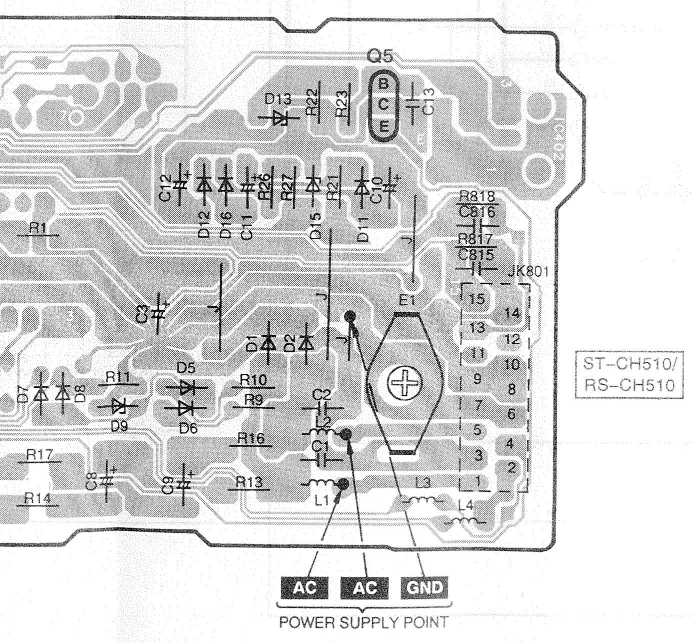
C LOADING MOTOR P.C.B. (REP0767)


IC790
LOADING MOTOR
S791
S790
CP790
C790
0431A-4

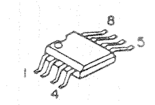
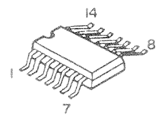
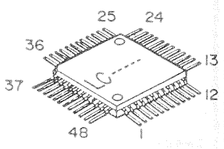
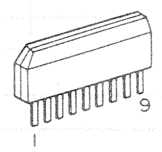
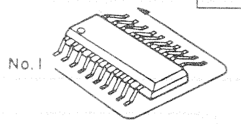
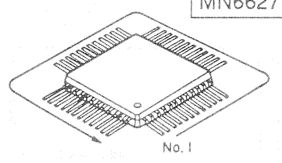
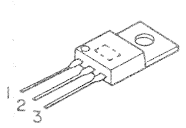
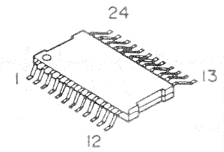
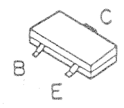
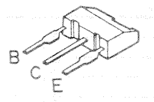
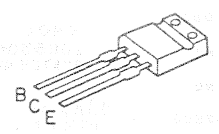
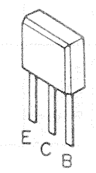
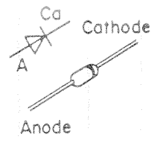
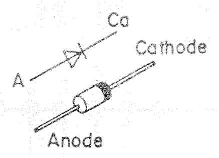
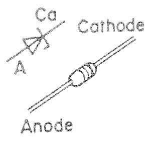
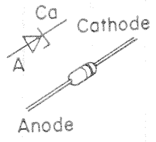
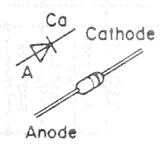
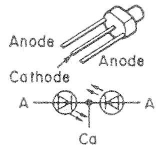
D MAIN P.C.B. (REP1911B–M)


IC401
IC801
IC802
IC1
Q801
Q1
Q2
Q4
X401
CN401
CN402
CN601
D3
D13
1100B
AC
POWE

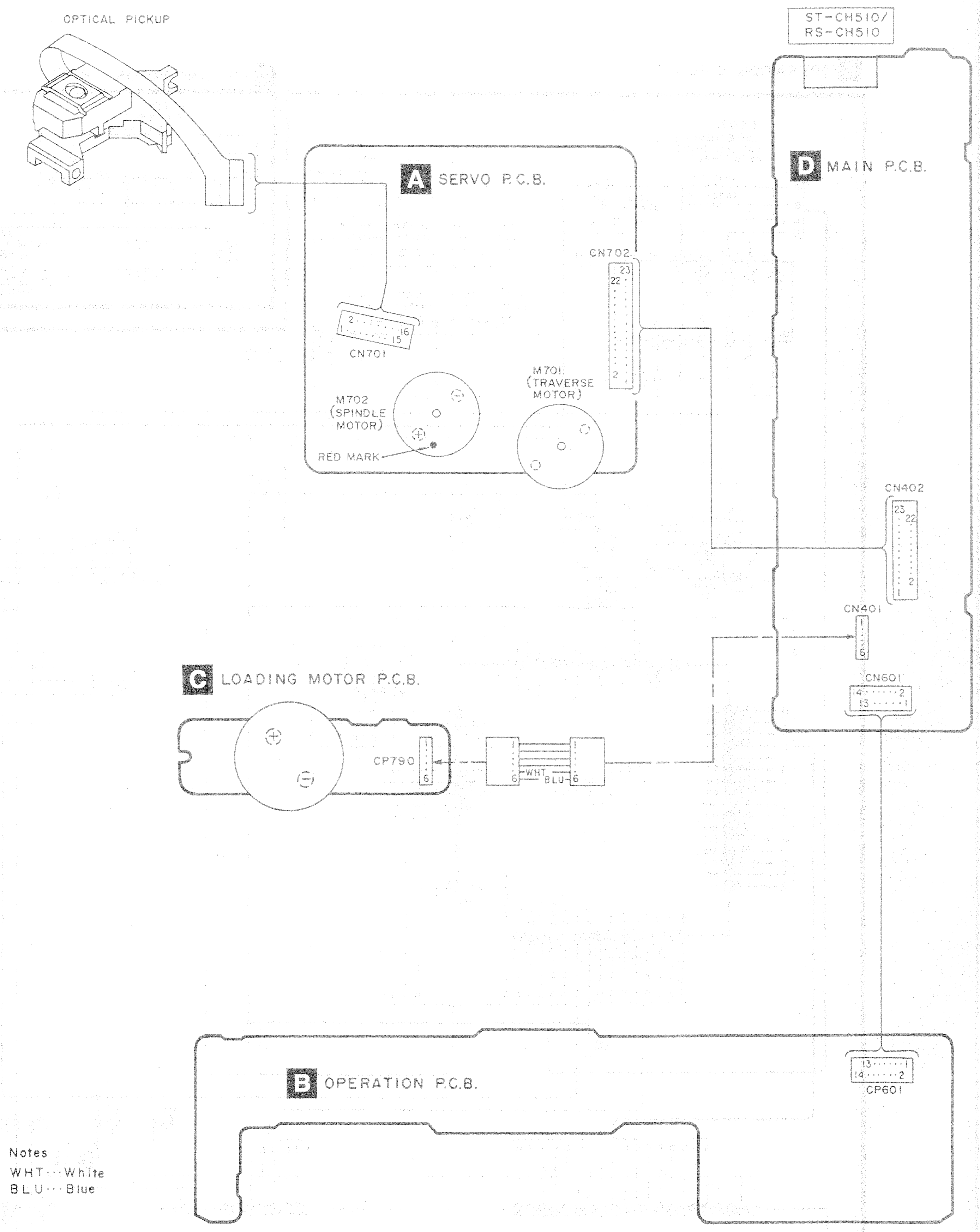

10
11
12
13
14
≜ OPEN/CLOSE
J.FIT
ALBUM
LAST FADE
S608
S606
S607
S605
D603
D604
R603
R604
R633
R632
R637
C612
IC602
GND
S602
(▶▶/▶▶I
SKIP/SEARCH)
S601
(I◀◀/◀◀
SKIP/SEARCH)
C610
C613
C611
S613
(▷)
R611
R610
C602
R615
C603
R614
R621
R620
R608
R609
C605
R616
S611
D606
CP601
D610
S612
1299A
□
▯▯


Q5
B
C
E
C13
D13
R22
R23
C12
D12
D16
C11
R26
R27
D15
R21
D11
C10
R818
C816
R817
C815
JK801
R1
C3
D4
D3
E1
C2
C1
R11
D5
R10
R9
D7
D8
D9
D6
R16
R17
C8
C9
R13
R14
L1
L3
L4
ST-CH510/
RS-CH510
AC
AC
GND
POWER SUPPLY POINT

● Terminal Guide of IC's, Transistors and Diodes

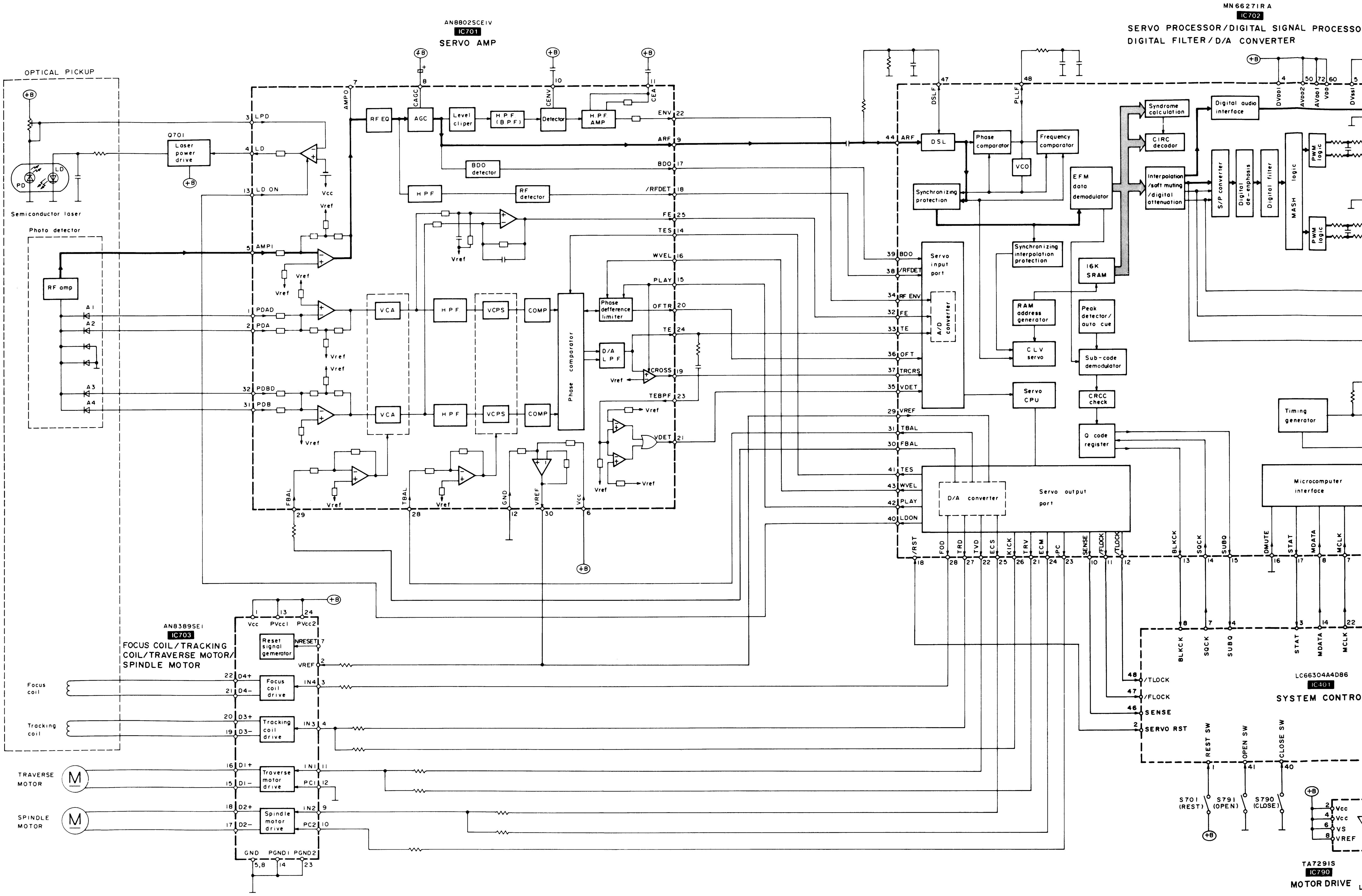
XRA4558FT1 	TC4066BFTP1 	LC66304A4D86 
TA7291S 	LA5608M-TE-L 14Pin AN8802SCE1V 32Pin 	
M38112M4104F 64Pin MN66271RA 80Pin 		LM2940T5 
AN8389SE1 	2SB709S 	2SB1238QRTV6 
2SD2137PQTA 	UN4112 	MA165 MA167 
RL1N4003N02 	MA4051MTA MA4082LTA 	MA4270HTA 
MA185TA 	SPR-305MDTF 	

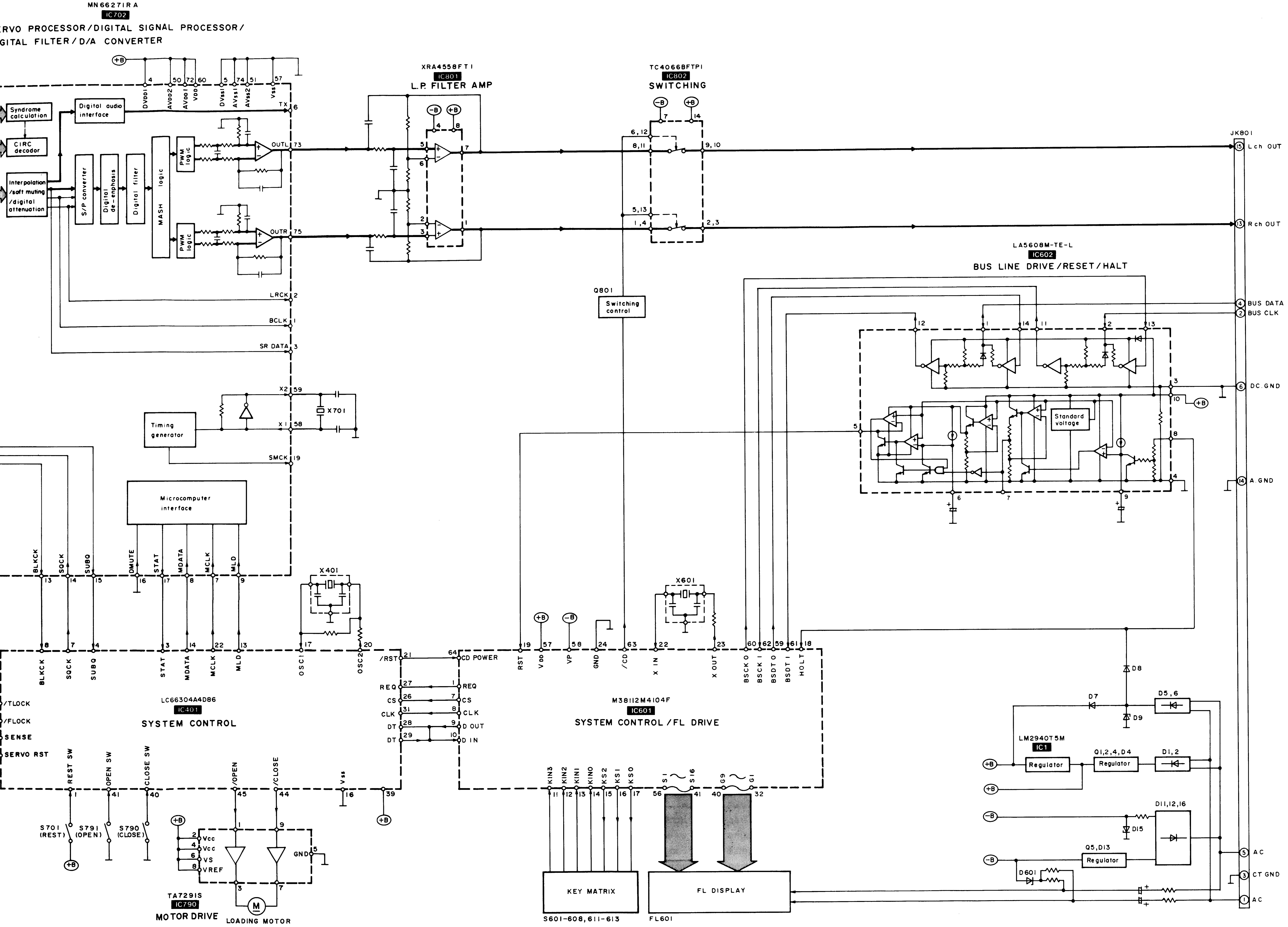
■ Wiring Connection Diagram


OPTICAL PICKUP
ST-CH510/
RS-CH510
A SERVO P.C.B.
D MAIN P.C.B.
CN702
CN701
M702
(SPINDLE
MOTOR)
M701
(TRAVERSE
MOTOR)
RED MARK
CN402
CN401
CN601
C LOADING MOTOR P.C.B.
CP790
WHT
BLU
B OPERATION P.C.B.
CP601

Notes
WHT···White
BLU···Blue

■ Block Diagram

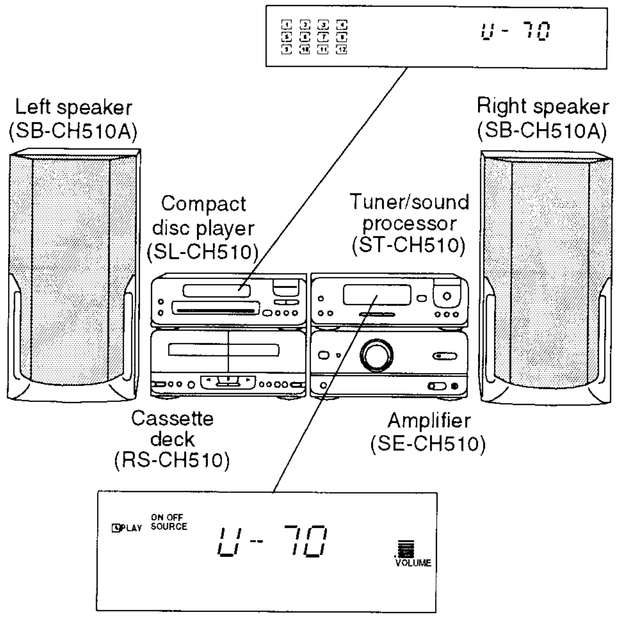

AN8802SCEIV
IC701
SERVO AMP
MN66271RA
IC702
SERVO PROCESSOR/DIGITAL SIGNAL PROCESSO
DIGITAL FILTER/D/A CONVERTER
OPTICAL PICKUP
PD
LD
Semiconductor laser
Photo detector
RF amp
A1
A2
A3
A4
Q701
Laser power drive
+B
Vcc
Vref
LPD
LD
LD ON
AMPI
PDAD
PDA
PDBD
PDB
AMPO
CAGC
CENV
CEA
RF EQ
AGC
Level cliper
HPF (BPF)
Detector
HPF AMP
BDO detector
HPF
RF detector
VCA
VCPS
COMP
Phase comparator
Phase defference limiter
D/A LPF
ENV
ARF
BDO
/RFDET
FE
TES
WVEL
PLAY
OFTR
TE
CROSS
TEBPF
VDET
FBAL
TBAL
GND
VREF
DSLF
PLLF
DSL
Phase comparator
Frequency comparator
VCO
Synchronizing protection
EFM data demodulator
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation
Digital audio interface
S/P converter
Digital de-enphasis
Digital filter
MASH logic
PWM logic
Synchronizing interpolation protection
16K SRAM
RAM address generator
Peak detector/ auto cue
CLV servo
Sub-code demodulator
Servo CPU
CRCC check
Q code register
Timing generator
Microcomputer interface
Servo input port
A/D converter
RF ENV
OFT
TRCRS
VDET
TBAL
FBAL
TES
WVEL
PLAY
LDON
D/A converter
Servo output port
/RST
FOD
TRD
TVD
ECS
KICK
TRV
ECM
PC
SENSE
/FLOCK
/TLOCK
BLKCK
SQCK
SUBQ
DMUTE
STAT
MDATA
MCLK
DVDD1
AVDD2
AVDD1
VDD
DVSS1
AN8389SEI
IC703
FOCUS COIL/TRACKING COIL/TRAVERSE MOTOR/ SPINDLE MOTOR
Vcc
PVcc1
PVcc2
Reset signal gemerator
NRESET
VREF
Focus coil drive
Tracking coil drive
Traverse motor drive
Spindle motor drive
D4+
D4−
D3+
D3−
D1+
D1−
D2+
D2−
IN4
IN3
IN1
PC1
IN2
PC2
GND
PGND1
PGND2
5,8
Focus coil
Tracking coil
TRAVERSE MOTOR
SPINDLE MOTOR
M
LC66304A4D86
IC401
SYSTEM CONTRO
/TLOCK
/FLOCK
SENSE
SERVO RST
REST SW
OPEN SW
CLOSE SW
S701 (REST)
S791 (OPEN)
S790 (CLOSE)
Vcc
VS
VREF
TA7291S
IC790
MOTOR DRIVE


MN66271RA
IC702
ERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/
IGITAL FILTER/D/A CONVERTER
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation
Digital audio interface
S/P converter
Digital de-emphasis
Digital filter
MASH logic
PWM logic
DVDD1
AVDD2
AVDD1
VDD
DVss1
AVss1
AVss2
Vss
TX
OUTL
OUTR
LRCK
BCLK
SR DATA
X2
X1
X701
Timing generator
SMCK
Microcomputer interface
BLKCK
SQCK
SUBQ
DMUTE
STAT
MDATA
MCLK
MLD
XRA4558FT1
IC801
L.P. FILTER AMP
TC4066BFTP1
IC802
SWITCHING
Q801
Switching control
JK801
Lch OUT
Rch OUT
BUS DATA
BUS CLK
DC GND
A GND
AC
CT GND
AC
LA5608M-TE-L
IC602
BUS LINE DRIVE/RESET/HALT
Standard voltage
X401
X601
LC66304A4D86
IC401
SYSTEM CONTROL
/TLOCK
/FLOCK
SENSE
SERVO RST
REST SW
OPEN SW
CLOSE SW
/OPEN
/CLOSE
Vss
OSC1
OSC2
/RST
REQ
CS
CLK
DT
DT
CD POWER
REQ
CS
CLK
D OUT
D IN
RST
VDD
VP
GND
/CD
X IN
X OUT
BSCK O
BSCK I
BSDT O
BSDT I
HOLT
M38112M4104F
IC601
SYSTEM CONTROL/FL DRIVE
KIN3
KIN2
KIN1
KIN0
KS2
KS1
KS0
S1
S16
G9
G1
KEY MATRIX
S601-608, 611-613
FL DISPLAY
FL601
S701 (REST)
S791 (OPEN)
S790 (CLOSE)
TA7291S
IC790
MOTOR DRIVE
Vcc
Vcc
VS
VREF
GND
M
LOADING MOTOR
D8
D7
D9
D5,6
LM2940T5M
IC1
Regulator
Q1,2,4,D4
Regulator
D1,2
D11,12,16
D15
Q5,D13
Regulator
D601
+B
-B

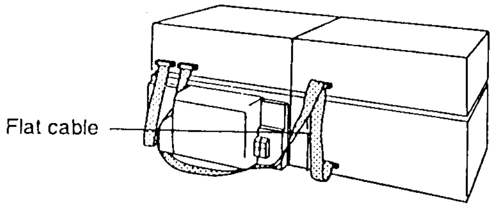
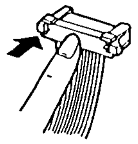
■About the Self-Diagnostic Mode

This unit is equipped with a self-diagnostic function which, in the event of a malfunction, automatically displays a code indicating the nature of the malfunction. Use this self-diagnostic function when servicing the unit.

SC-CH510 (SL-CH510, ST-CH510, SE-CH510, RS-CH510, SB-CH510A)

Display method	Display location
To display the malfunction code U-70:...........Automatically displays on the tuner/sound processor and the CD player when a malfunction occurs. F-61 ....Automatically displays on the tuner/sound processor when a malfunction occurs. **To return to the normal display** **1. For U-70:** ● Press an operation button (any button other than the OPEN/CLOSE button) on the unit (tuner/sound processor or CD player) which displayed "U-70". ● To re-display the code, switch the power off (POWER STANDBY button), and then switch power back on again. **2. For F-61:** ● If "F-61" is displayed, the power will automatically be switched off and the standby indicator will light up. ● "F-61" will be displayed for 3 seconds, and then the clock will be displayed. ● To re-display the code, switch the power on. "F-61" will be re-displayed, and then after 3 seconds the clock will be displayed and the power will automatically switch off.	 U - 70 Left speaker (SB-CH510A) Right speaker (SB-CH510A) Compact disc player (SL-CH510) Tuner/sound processor (ST-CH510) Cassette deck (RS-CH510) Amplifier (SE-CH510) PLAY ON OFF SOURCE U - 70 VOLUME

Display contents

Display code	Problem or condition	Correction procedure
U-70 (displayed automatically)	A bus-line communications error has occurred as a result of the flat cables being inserted incorrectly, thus preventing the system from operating. 1. If "U-70" is displayed on the tuner/sound processor, the tape deck cannot be operated by remote control. 2. If "U-70" is displayed on the CD player, the CD player cannot be operated by remote control.	 1. To check for correct insertion of the flat cables ①Match each connector with the color (black/white) of the connection port and insert until you hear a click. ②Insert the flat cables at the back of the unit in the order indicated. Make sure the which side of the cable is on your right side.  2. Breakage of flat cable (Check and replace as necessary.) 3. If the problem is not corrected by items (1.) and (2.) above, this indicates a faulty IC. **SL-CH510:** IC601 (M38112M4102F) IC602 (LA5608M-TE-L) Check these IC's and replace as necessary.
F-61	When the power switch is switched on, it automatically switches back off, making it impossible to switch power on.	1. Faulty amplifier (SE-CH510) output IC (IC501). 2. Fan motor is burnt out, locked, or stopped. 3. Replace the output IC or fan motor as necessary.

■ Automatic Adjustment Results Display Function

Self-Check Function

The SL-CH510 unit has a function that uses the FL display board to indicate the results of automatic adjustment of the servo-circuit (tracking, focus, offset, etc.) as error codes. The error code display indicates the location of failures from automatic adjustment circuit.

The following procedure displays the error codes from the self-diagnostic function.

● Procedure for displaying automatic adjustment codes

1. Set the unit in the servo P.C.B. checking mode (refer to page 6).
2. Turn on the power supply switch (refer to page 9) while pressing the STOP (■) and REPEAT buttons at the same time.
3. The "C-2" code is displayed 2 or 3 seconds later to indicate the automatic adjustment mode.

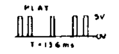
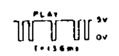
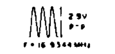
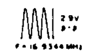
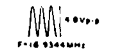
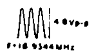
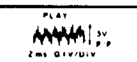
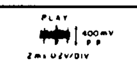
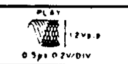
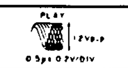
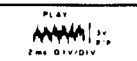
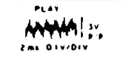
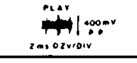
   Note:

   When the SL-CH510 is removed from its set and then operated, "U-70" is displayed on the FL display as an error code.
   Even if the buttons are pushed continuously after this indication, the display will automatically change to "C-2".
4. After automatic adjustment, the code display indicates the location of failures in the servo circuit.

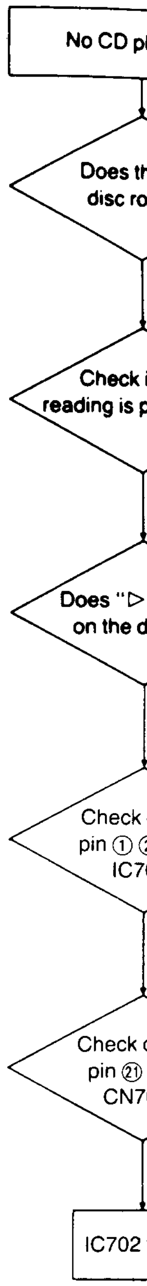
● Troubleshooting using the automatic adjustment code

Notes:

1. If "E-00" is displayed as an error code, this means no error was found.
2. Check the disc and laser-detector lens for damage, contamination or stains.

FL error code display	Symptom	Probable cause	Signal to check		Normal voltage and waveform values	
			Location	Signal name	PLAY	STOP
E-01	Focus and tracking offset adjustments not completed in specified time period.	① Clocks X1 and X2, power supply VDD, and reset/RST, all on IC702. ② MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller.	IC702 ⑧ pin	MDATA		4.8V
			IC702 ⑦ pin	MCLK		4.8V
			IC702 ⑨ pin	MLD		
			IC702 ⑩ pin	SENSE	0V	0V
			IC702 ⑱ pin	/RST	4.9V	4.9V
			IC702 ㊳ pin	X1		
			IC702 ㊴ pin	X2		
E-03 E-05 E-07 E-09 E-0B E-0D E-0F	Disc play unstable	① Scratches or contaminants on disc surface ② Focus and Tracking servo circuits (check waveforms, voltages, and part values.) ③ Spindle driver circuit ④ Optical pickup	IC702 ㉜ pin	F E		2.4V
			IC702 ㉝ pin	T E		2.4V
			IC702 ㉘ pin	FOD	2.4V	2.4V
			IC702 ㉗ pin	TRD	2.4V	2.4V
			IC702 ㉖ pin	KICK	2.4V	2.4V
			IC702 ⑪ pin	/FLOCK	0V	4.9V
			IC702 ㊳ pin	/RF DET	0V	4.8V
			TJ701	R F		3.4V
			IC702 ⑰ pin	STAT	4.9V	0V
E-4 E-6 E-C E-E	Best "eye" (PD balance) adjustment not completed in specified time period.	① Scratches or contaminants on disc surface ② Focus servo circuits (check waveforms, voltages, and part values.) ③ Optical pickup	IC702 ㉚ pin	FBAL	2.5V ± 1.25V	2.5V ± 1.25V
			TJ701	R F		3.4V
			IC702 ㉜ pin	F E		0V
			IC702 ㊱ pin	O F T	0V	0V
			IC702 ⑫ pin	/TLOCK	0V	0V
E-8 E-A	Focus or Tracking gain adjustment not completed in specified time period.	① Scratches or contaminants on disc surface ② Focus and Tracking servo circuit (check waveforms, voltages, and part values.) ③ Optical pickup	IC702 ㉜ pin	F E		2.4V
			IC702 ㉝ pin	T E		2.4V
			IC702 ㊱ pin	O F T	0V	0V
			IC702 ⑫ pin	/TLOCK	0V	0V

■ Trou



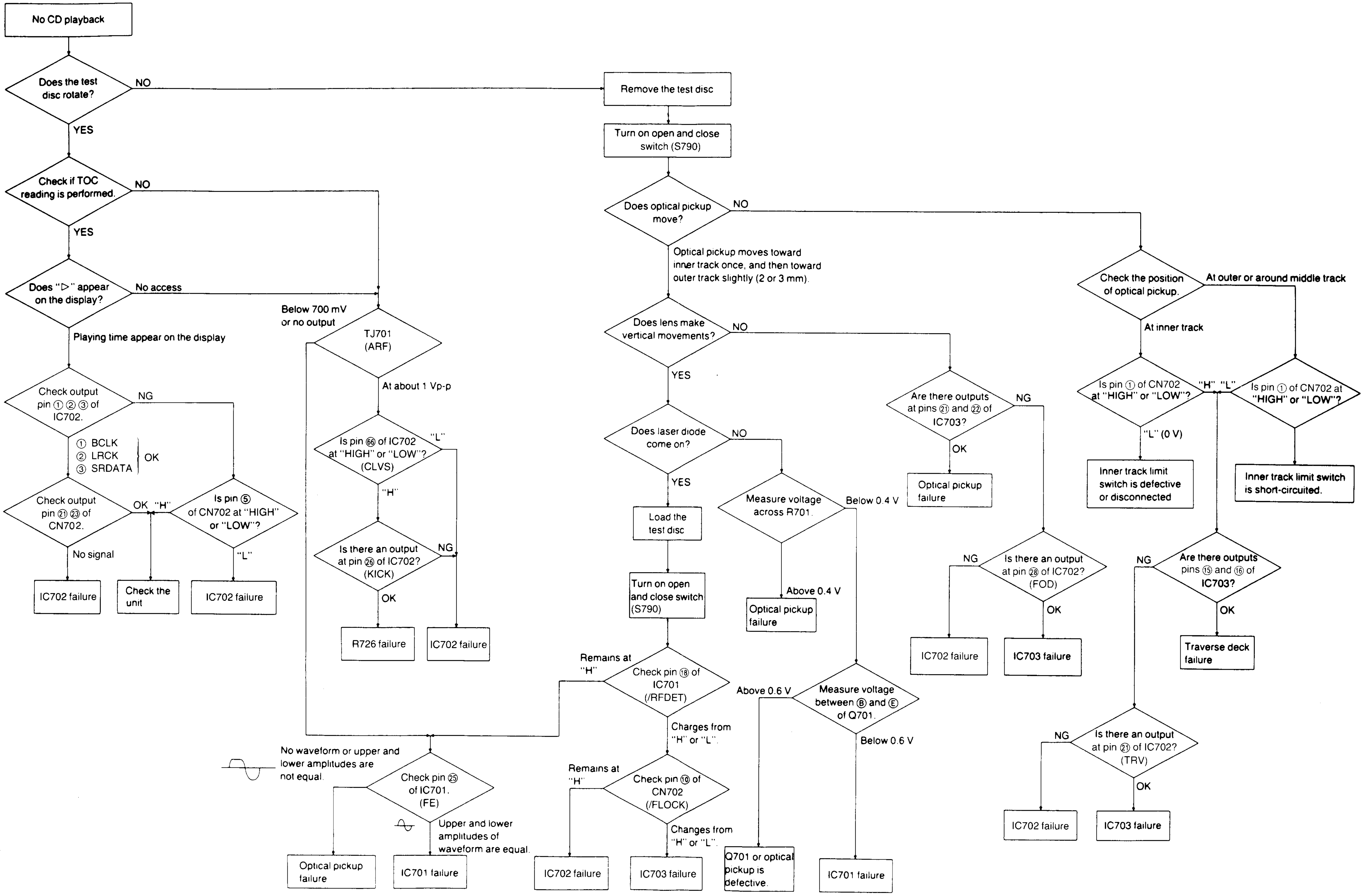
stment
tion of

e time.

code.

nd s
STOP
4.8V
4.8V
0V
4.9V
[illegible]
[illegible]
2.4V
2.4V
2.4V
2.4V
2.4V
4.9V
4.8V
3.4V
0V
V ± 1.25V
3.4V
0V
0V
0V
2.4V
2.4V
0V
0V

■ Troubleshooting Guide


No CD playback
Does the test disc rotate?
NO
YES
Check if TOC reading is performed.
NO
YES
Does "▷" appear on the display?
No access
Playing time appear on the display
Check output pin ① ② ③ of IC702.
NG
① BCLK
② LRCK
③ SRDATA
OK
Check output pin ㉑ ㉓ of CN702.
OK "H"
Is pin ⑤ of CN702 at "HIGH" or "LOW"?
"L"
No signal
IC702 failure
Check the unit
IC702 failure
Below 700 mV or no output
TJ701 (ARF)
At about 1 Vp-p
Is pin ㊻ of IC702 at "HIGH" or "LOW"? (CLVS)
"L"
"H"
Is there an output at pin ㉖ of IC702? (KICK)
NG
OK
R726 failure
IC702 failure
No waveform or upper and lower amplitudes are not equal.
Check pin ㉕ of IC701. (FE)
Upper and lower amplitudes of waveform are equal.
Optical pickup failure
IC701 failure
Remove the test disc
Turn on open and close switch (S790)
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm).
Does lens make vertical movements?
NO
YES
Does laser diode come on?
NO
YES
Load the test disc
Turn on open and close switch (S790)
Remains at "H"
Check pin ⑱ of IC701 (/RFDET)
Charges from "H" or "L".
Remains at "H"
Check pin ⑩ of CN702 (/FLOCK)
Changes from "H" or "L".
IC702 failure
IC703 failure
Measure voltage across R701.
Below 0.4 V
Above 0.4 V
Optical pickup failure
Measure voltage between Ⓑ and Ⓔ of Q701.
Above 0.6 V
Below 0.6 V
Q701 or optical pickup is defective.
IC701 failure
Are there outputs at pins ㉑ and ㉒ of IC703?
NG
OK
Optical pickup failure
Is there an output at pin ㉘ of IC702? (FOD)
NG
OK
IC702 failure
IC703 failure
Check the position of optical pickup.
At outer or around middle track
At inner track
Is pin ① of CN702 at "HIGH" or "LOW"?
"H"
"L" (0 V)
Inner track limit switch is defective or disconnected
"L"
Is pin ① of CN702 at "HIGH" or "LOW"?
Inner track limit switch is short-circuited.
Are there outputs pins ⑮ and ⑯ of IC703?
NG
OK
Traverse deck failure
Is there an output at pin ㉑ of IC702? (TRV)
NG
OK
IC702 failure
IC703 failure

Function of IC Terminals

• IC401 (LC66304A4D86)

Pin No.	Terminal Name	I/O	Function
1	REST SW	I	Innermost track sense switch detection signal input
2	SERVO RST	O	Reset signal output
3	STAT	I	Status signal input
4	SUBQ	I	Sub-code Q data input
5	D MUTE	—	Unused, open
6	NC	—	Connected to VDD (+5 V)
7	SQCK	O	Sub-code Q data clock output
8	BLKCK	I	Sub-code block data clock input
9	ODI RX	I	Connected to VDD (+5V)
10	GMUTE	—	Unused, open
11	NU	—	
12	NU	—	Connected to VDD (+5 V)
13	/MLD	O	Microprocessor command load signal output
14	MDATA	O	Microprocessor command data output
15	TEST	—	Connected to GND
16	VSS	—	
17	OSC1	I	Clock signal input from X401 (4.23 MHz)
18	NC	—	Connected to GND
19	NC	—	
20	OSC2	O	Clock signal output for X401 (4.23 MHz)
21	/RST	I	Reset signal input
22	MCLK	O	Microprocessor command clock output
23	NU	—	Unused, open
24	ENPHA	—	
25	MUTE	—	

Pin No.	Terminal Name	I/O	Function
26	CS	I	Input the serial data communication starting signal from IC601 of system control
27	REQ	I	Input the command request data signal from IC601 of system control
28	DT	I/O	Input/output the serial data signal
29			
30	NC	—	Connected to GND
31	CLK	O	Output the serial clock signal from IC601 of system control
32	NU	—	Unused, open
33	NU	—	Connected to GND
34			
35			
36	CS	—	
37	NU	—	
38	CS	—	Connected to VDD (+5 V)
39	VDD	I	Power supply (+5 V)
40	CLOSE SW	I	Disc tray "close" sense switch detection signal input
41	OPEN SW	I	Disc tray "open" sense switch detection signal input
42	NC	—	Connected to VDD (+5 V)
43			
44	/CLOSE	O	Disc tray "close" command signal output
45	/OPEN	O	Disc tray "open" command signal output
46	SENSE	I	Sense signal input
47	/FLOCK	I	Focus servo command signal input
48	/TLOCK	I	Tracking servo command signal input

• IC601 (M38112M4104F)

Pin No.	Terminal Name	I/O	Function
1	REQ	O	Output the command request data signal for IC401 of system control
2	GRST	—	Unused, open
3 ~ 6	NC	—	Unused, open
7	CS	O	Output the serial communication starting signal for IC401 of system control
8	CLK	I	Input the serial clock signal for IC401 of system control
9	DOUT	O	Output the serial data signal for IC401 of system control
10	DIN	I	Input the serial data signal from IC401 of system control
11 ~ 14	KIN3 ~ KIN0	I	Signal input from operation key
15 ~ 17	KS2 ~ KS0	O	Strobe signal output for operation key scanning
18	HOLT	I	Detection signal input for an electricity failure
19	RST	I	Reset signal input
20	XCIN	—	Connected to GND
21	XCOUT	—	Unused, open
22	XIN	I	Clock signal input from X601 (4.23 MHz)
23	XOUT	O	Clock signal output for X601 (4.23 MHz)
24	GND	—	Connected to GND

Pin No.	Terminal Name	I/O	Function
25	SCDG	I	Connected to GND
26	GMUTE	—	Unused, open
27	NU	—	Connected to GND
28	CS	—	Connected VDD (+5 V)
29	PLED1	O	Output signal for PLAY LED lighting
30	PLED2		
31	NU	—	Unused, open
32 ~ 40	G1 ~ G9	O	Grid signal output for FL display
41 ~ 56	S16 ~ S1	O	Segment signal output for FL display
57	VDD	—	Supplied +5 V
58	VP	—	Supplied power to FL display for pulling down
59	BSDTO	O	Data signal output to bus
60	BSCKO	O	Clock signal output to bus
61	BSDTI	I	Data signal input from bus
62	BSCKI	I	Clock signal input from bus
63	/CD	O	AF signal switching
64	CD POWER	O	Reset signal output for IC401

•IC703 (AN8389SE1)

Pin No.	Terminal Name	I/O	Function
1	Vcc	I	Power supply
2	VREF	I	VREF input
3	IN4	I	Motor driver (4) input
4	IN3	I	Motor driver (3) input
5	GND	—	Ground connection
6	NC	—	Ground connection
7	NRESET	—	Reset input
8	GND	—	Ground connection
9	IN2	I	Motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Motor driver (1) input
12	PC1	I	PC1 (power cut) input (no use, open)

Pin No.	Terminal Name	I/O	Function
13	PVcc1	I	Power supply (1) for driver
14	PGND1	—	Ground connection (1) for driver
15	D1–	O	Motor driver (1) reverse-action output
16	D1+	O	Motor driver (1) forward-action output
17	D2–	O	Motor driver (2) reverse-action output
18	D2+	O	Motor driver (2) forward-action output
19	D3–	O	Motor driver (3) reverse-action output
20	D3+	O	Motor driver (3) forward-action output
21	D4–	O	Motor driver (4) reverse-action output
22	D4+	O	Motor driver (4) forward-action output
23	PGND2	—	Ground connection (2) for driver
24	PVcc2	I	Power supply (2) for driver

•IC701 (AN8802SCE1V)

Pin No.	Terminal Name	I/O	Function
1	PDAD	I	PD A channel signal input with delay
2	PDA	I	PD A channel signal input without delay
3	LPD	I	Laser PD connection
4	LD	O	Power supply for LD driving
5	AMPI	I	RF amplifier input
6	Vcc	I	Power supply connection
7	AMPO	O	RF amplifier output (no use, open)
8	CAGC	I	AGC loop filter connection
9	ARF	O	RF AGC output
10	CENV	I	Capacitor connection for RF detection
11	CEA	I	Capacitor connection for HPF amplifier
12	GND	—	Ground connection
13	LDON	I	ON/OFF input of LD APC ("H": ON, "L": OFF)
14	TES	I	Tracking error shunt signal input ("H": shunt)
15	PLAY	I	Play signal input ("H": PLAY)
16	WVEL	I	WVEL control
17	BDO	O	BDO output
18	/RFDET	O	NRFDET output
19	CROSS	O	CROSS output
20	OFTR	O	OFTR output
21	VDET	O	VDET output
22	ENV	O	ENV output
23	TEBPF	I	Vibration detection input
24	TE	O	Tracking error output
25	FE	O	Focus error output
26	PTO	O	Potentioamplifier output (no use, open)
27	PTI	I	Potentioamplifier inversion input (no use, open)
28	TBAL	I	Tracking balance input
29	FBAL	I	Focus balance input
30	VREF	O	VREF output
31	PDB	I	PD B channel signal input without delay
32	PDBD	I	PD B channel signal input with delay

•IC702 (MN66271RA)

Pin No	Terminal Name	I/O	Function
1	BCLK	—	Bit clock output for serial data (no used, open)
2	LRCK	—	L/R identification signal output (no use, open)
3	SRDATA	—	Serial data output (no used, open)
4	DV$_{DD}$1	I	Power supply input (for digital circuit)
5	DV$_{SS}$1	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sence signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK=75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q register
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset input
19	SMCK	—	1/2-divided clock signal of crystal oscillating at MSEL="H" (fSMCK=8.4672 MHz) 1/4-divided clock signal of crystal oscillating at MSEL="L" (fSMCK=4.2336 MHz)
20	PMCK	—	1/192-divided clock signal of crystal oscillating (fPMCK=88.2 KHz) (no use, open)
21	TRV	O	Traverse forced feed output
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) Reference voltage input
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)
36	OFT	I	Off-track signal input ("H": off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	O	Play signal out ("H": PLAY)
43	WVEL	O	Double speed status signal output ("H": Double speed)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	—	DSL bias (no use, open)
47	DSLF	I/O	DSL loop filter
48	PLLF	I/O	PLL loop filter
49	VCOF	—	VCO loop filter (no use, open)
50	AV$_{DD}$2	I	Power supply input (for analog circuit)
51	AV$_{SS}$2	—	GND (for analog circuit)
52	EFM	—	EFM signal output (not use, open)
53	PCK	—	PLL extraction clock output (fPCK=4.321 MHz during normal playback) (no use, open)
54	PDO	—	Phase comparison signal of EFM and PCK signals (no use, open)
55	SUBC	O	Sub-code serial data output (no use, open)
56	SBCK	I	Clock input for sub-code serial data (no use, open)
57	V$_{SS}$	—	GND
58	X1	I	Crystal oscillating circuit input (f=16.9344 MHz)
59	X2	O	Crystal oscillation circuit output (f=16.9344 MHz)
60	V$_{DD}$	I	Power supply input (for oscillating circuit)
61	BYTCK	—	Byte clock output (no use, open)
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK=7.35 kHz during normal playback)
63	FCLK	—	Crystal frame clock signal output (fFCLK=7.35 kHz, double=14.7 kHz)
64	PFLAG	O	Interpolation flag output ("H": Interpolation) (no use, open)
65	FLAG	O	Flag output (no use, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (no use, open)
67	CRC	O	Sub-code CRC checked output ("H": OK, "L": NG) (no use, open)
68	DEMPH	O	De-emphasis ON signal output ("H": ON) (no use, open)
69	RESY	—	Frame resynchronizing signal output (no use, open)
70	/RST2	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input
72	AV$_{DD}$1	I	Power supply input (for analog circuit)
73	OUTL	O	Left channel audio signal output
74	AV$_{SS}$1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level, RSEL="H"; at "L" level, RSEL=L)
77	CSEL	—	Crystal oscillating frequency designation input ("L": 16.9344 MHz, "H": 33.8688 MHz)
78	PSEL	—	Test input (normally, "L") (no use, open)
79	MSEL	—	Output frequency switching for SMCK terminal "H": SMCK=8.4672 MHz "L": SMCK=4.2336 MHz (no use, open)
80	SSEL	I	Output mode switching of SUBQ terminal ("H": Q code buffer mode)

■ Replacement Parts List

Notes: •Important safety notice:
Components identified by △ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
•The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
•Warning: This product uses a diode. Refer to caution statements on page 2.
•The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	LM2940T5	IC, REGULATOR	⚠
IC401	LC66304A4D86	IC, SYSTEM CONTROL	
IC601	M38112M4104F	IC, FL DRIVE/SYSTEM CONT.	
IC602	LA5608M-TE-L	IC, BUS LINE/HALT/RESET	
IC701	AN8802SCE1V	IC, SERVO AMP.	
IC702	MN66271RA	IC, SERVO PROCESSOR	
IC703	AN8389SE1	IC, MOTOR DRIVE	
IC790	TA7291S	IC, MOTOR DRIVE	
IC801	XRA4558FT1	IC, L. P. F.	
IC802	TC4066BFTP1	IC, SWITCHING	
		TRANSISTOR(S)	
Q1, 2	2SD2137PQTA	TRANSISTOR	⚠
Q4	2SD2137PQTA	TRANSISTOR	⚠
Q5	2SB1238QRTV6	TRANSISTOR	⚠
Q701	2SB709S	TRANSISTOR	
Q801	UN4112	TRANSISTOR	
		DIODE(S)	
D1, 2	RL1N4003N02	DIODE	⚠
D3	RL1N4003N02	DIODE	
D4	MA4082LTA	DIODE	⚠
D5, 6	MA167	DIODE	⚠
D7, 8	MA165	DIODE	
D9	MA4051MTA	DIODE	⚠
D11, 12	MA185TA	DIODE	⚠
D13	MA4270HTA	DIODE	⚠
D15	MA4051MTA	DIODE	⚠
D16	MA185TA	DIODE	⚠
D602-604	MA165	DIODE	
D606	SPR-305MDTF	LED	
D608, 609	MA165	DIODE	
D610	MA4051MTA	DIODE	⚠
		COIL(S)	
L1, 2	BL02RN2R65T2	COIL	⚠
L3, 4	ELEXT3R3KA9	COIL	
L601	RLQA100JT-Y	COIL	
		OSCILLATOR(S)	
X401	EF0EC4234T3	OSCILLATOR(4.23MHz)	
X601	EF0EC4234T3	OSCILLATOR(4.23MHz)	
X701	RSXB16M9J01T	OSCILLATOR(16.9344MHz)	
		DISPLAY TUBE	
FL601	RSL0185-F	DISPLAY TUBE	
		SWITCH(ES)	
S601	EVQ21405R	SW, R. SKIP/R. SEARCH	
S602	EVQ21405R	SW, F. SKIP/F. SEARCH	
S603	EVQ21405R	SW, REPEAT	
S604	EVQ21405R	SW, RANDOM	
S605	EVQ21405R	SW, LAST FADE	
S606	EVQ21405R	SW, JUST FIT	
S607	EVQ21405R	SW, ALBUM	
S608	EVQ21405R	SW, TRAY OPEN/CLOSE	
S611	EVQ21405R	SW, STOP	
S612	EVQ21405R	SW, PAUSE	
S613	EVQ21405R	SW, PLAY	
S701	RSM0006-P	SW, REST	
S790	RSH1A005	SW, LOADING CLOSE DETECT	
S791	RSH1A005	SW, LOADING OPEN DETECT	
		CONNECTOR(S)	
CN401	RJP6G18ZA	CONNECTOR(6P)	
CN402	RJS1A6823	SOCKET(23P)	
CN601	RJS1A6814	SOCKET(14P)	
CN701	RJU035T016-1	SOCKET(16P)	
CN702	RJS1A6723-1Q	SOCKET(23P)	
CP601	RJS1A6714	SOCKET(14P)	
CP790	RJP6G17ZA	CONNECTOR(6P)	
		GND PLATE	
E1	SNE1004-2	GND PLATE	
		JACK	
JK801	RJT065K15	SYSTEM CONNECTOR	
		TEST JUMPER(S)	
TJ701, 702	EYF8CU	TEST JUMPER	

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

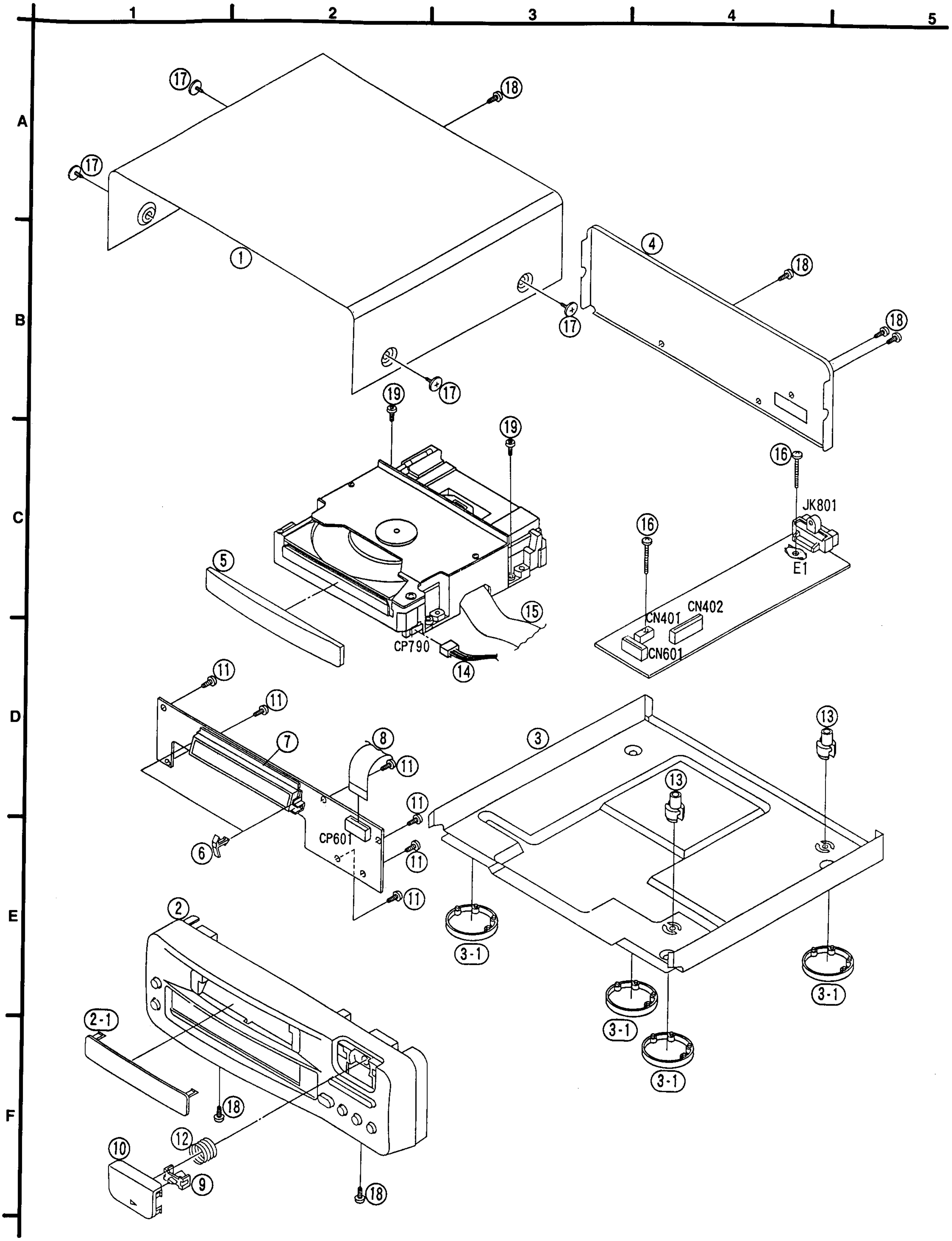
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERQ16NKWR15E	1/6W 0.15 ⚠
R2	ERDS1FVJ271T	1/2W 270 ⚠
R3	ERD2FCVJ6R8T	1/4W 6.8 ⚠
R4, 5	ERDS2TJ1R2	1/4W 1.2
R7	ERDS2TJ1R2	1/4W 1.2
R8	ERDS2TJ220T	1/4W 22
R9	ERDS2TJ562	1/4W 5.6K
R10	ERDS2TJ562	1/4W 5.6K
R11	ERDS2TJ472	1/4W 4.7K
R13	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R14, 15	ERG1SJ150E	1W 15
R16	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R17, 18	ERG1SJ150E	1W 15
R19, 20	ERDS2TJ100	1/4W 10
R21	ERG1SJ180E	1W 18
R22	ERDS2TJ562	1/4W 5.6K
R23	ERDS2TJ471	1/4W 470
R26, 27	ERDS2TJ271	1/4W 270
R28	ERDS2TJ101	1/4W 100
R31-36	ERDS2TJ100	1/4W 10
R402, 403	ERDS2TJ102	1/4W 1K
R404-407	ERDS2TJ152	1/4W 1.5K
R408	ERDS2TJ104	1/4W 100K
R409, 410	ERDS2TJ103	1/4W 10K
R411	ERDS2TJ472	1/4W 4.7K
R412	ERDS2TJ102	1/4W 1K
R413	ERDS2TJ472	1/4W 4.7K
R414	ERDS2TJ102	1/4W 1K
R415	ERDS2TJ105T	1/4W 1M
R421	ERDS2TJ223	1/4W 22K
R427	ERDS2TJ103	1/4W 10K
R428	ERDS2TJ223	1/4W 22K
R429	ERDS2TJ102	1/4W 1K
R601-604	ERDS2TJ473	1/4W 47K
R605	ERDS2TJ101	1/4W 100
R606	ERDS2TJ104	1/4W 100K
R607	ERDS2TJ103	1/4W 10K
R608, 609	ERDS2TJ102	1/4W 1K
R610-613	ERDS2TJ101	1/4W 100
R614, 615	ERDS2EJ121	1/4W 120
R616	ERDS2TJ104	1/4W 100K
R618, 619	ERDS2TJ151	1/4W 150
R620, 621	ERDS2TJ1R2	1/4W 1.2
R632, 633	ERDS2TJ472	1/4W 4.7K
R637	ERDS2TJ470	1/4W 47
R701	ERJ6GEYJ100	1/10W 10
R702	ERJ6GEYJ471V	1/10W 470
R703	ERJ6GEYJ823	1/10W 82K
R704	ERJ6GEYJ102A	1/10W 1K
R705	ERJ6GEYJ103V	1/10W 10K
R706	ERJ6GEYJ102A	1/10W 1K
R707	ERJ6GEYJ473V	1/10W 47K
R708	ERJ6GEYJ104V	1/10W 100K
R709	ERJ6GEYJ683V	1/10W 68K
R711	ERJ6GEYJ154V	1/10W 150K
R712	ERJ6GEYJ221V	1/10W 220
R714	ERJ6GEYJ121V	1/10W 120
R717, 718	ERJ6GEYJ102A	1/10W 1K
R721	ERJ6GEYJ101V	1/10W 100
R722	ERJ6GEYJ563V	1/10W 56K
R723	ERJ6GEYJ182V	1/10W 1.8K
R724	ERJ6GEYJ333V	1/10W 33K
R725	ERJ6GEYJ472V	1/10W 4.7K
R726	ERJ6GEYJ473V	1/10W 47K
R727	ERJ6GEYJ103V	1/10W 10K
R728	ERJ6GEYJ392V	1/10W 3.9K
R731	ERJ6GEYJ392V	1/10W 3.9K
R735, 736	ERJ6GEYJ101V	1/10W 100
R744	ERJ6GEYJ103V	1/10W 10K
R745	ERJ6GEYJ155V	1/10W 1.5M
R748	ERJ6GEYJ182V	1/10W 1.8K
R749	ERJ8GEYJ103V	1/8W 10K
R801, 802	ERDS2TJ102	1/4W 1K
R803, 804	ERDS2TJ104	1/4W 100K
R805-808	ERDS2TJ223	1/4W 22K
R809, 810	ERDS2TJ273	1/4W 27K
R811, 812	ERDS2TJ332	1/4W 3.3K
R813, 814	ERDS2TJ104	1/4W 100K
R815, 816	ERDS2TJ102	1/4W 1K
R817, 818	ERDS2TJ104	1/4W 100K
R819	ERDS2TJ103	1/4W 10K
		CHIP JUMPER(S)
J701, 702	ERJ8GEY0R00A	1/8W 0
J707-709	ERJ8GEY0R00A	1/8W 0
J714	ERJ8GEY0R00A	1/8W 0
J716-718	ERJ8GEY0R00A	1/8W 0
J721	ERJ6GEY0R00A	1/10W 0
J724-726	ERJ6GEY0R00A	1/10W 0
J728, 729	ERJ8GEY0R00A	1/8W 0
J731, 732	ERJ6GEY0R00A	1/10W 0
		CAPACITORS
C1, 2	ECBT1E103ZF	25V 0.01U
C3	ECA1CM222B	16V 2200U ⚠
C4	ECEA1AKA101B	10V 100U
C5	ECBT1H102KB5	50V 1000P
C6	ECEA1AKA221B	10V 220U
C7	RCE0JKA221BV	6.3V 220U
C8, 9	ECA1VFQ121B	35V 120U
C10	ECA1EM101B	25V 100U ⚠
C11, 12	ECA1HM470B	50V 47U
C13	ECBT1H102KB5	50V 1000P
C401	ECBT1E103ZF	25V 0.01U
C402	ECBT1H104ZF5	50V 0.1U
C403	ECBT1H102KB5	50V 1000P
C404	ECBT1E103ZF	25V 0.01U
C601	ECBT1H104ZF5	50V 0.1U
C602, 603	ECEA1HKA3R3B	50V 3.3U
C604	ECEA0JKA470B	6.3V 47U
C605	ECBT1H102KB5	50V 1000P
C606	ECBT1E103ZF	25V 0.01U
C608	ECBT1E103ZF	25V 0.01U
C610	ECEA1HKAR22B	50V 0.22U
C611	ECEA1HKAR33B	50V 0.33U
C612	ECBT1E223ZF	25V 0.022U
C613	ECBT1E103ZF	25V 0.01U
C701	ECEA0JKA220	6.3V 22U
C702	ECEA1HKA010I	50V 1U
C703	ECEA0JKA101I	6.3V 100U
C704	ECUZ1E104MBN	25V 0.1U
C705	ECEA1HKA010I	50V 1U
C706	ECUE1H101JCN	50V 100P
C707	ECUV1E273KBN	25V 0.027U
C708	ECUE1H472KBN	50V 4700P
C709	ECUE1C473KBN	16V 0.047U
C710	ECUE1H152KBN	50V 1500P
C711, 712	ECUZ1E104MBN	25V 0.1U
C713	ECUV1C104MBM	16V 0.1U
C714	ECEA0JKA101I	6.3V 100U
C715	ECEA0JKA470I	6.3V 47U
C716	ECUE1H561KBN	50V 560P
C717	ECUZ1E104MBN	25V 0.1U
C718	ECUV1C224KBM	16V 0.22U
C721	ECUV1H070DCN	50V 7P
C722	ECUV1H220JCN	50V 22P
C723	ECEA1AKA221I	10V 220U
C724	ECUV1C104MBM	16V 0.1U
C725, 726	ECUV1H102JCN	50V 1000P
C727, 728	ECEA1HPK010I	50V 1U
C730	ECUZ1E104MBN	25V 0.1U
C731, 732	ECEA0JK221I	6.3V 220U

Ref. No.	Part No.	Values & Remarks
C733	ECUZ1E104MBN	25V 0.1U
C734	ECEA1AKA221I	10V 220U
C735-737	ECUZNE104MBN	25V 0.1U
C738	ECUV1C154KBN	16V 0.15U
C742	ECUV1E273KBN	25V 0.027U
C743	ECUZNE104MBN	25V 0.1U
C744	ECUE1E822KBN	25V 8200P
C745	ECUE1H102KBN	50V 1000P
C747	ECUE1H222KBN	50V 2200P
C748	ECUV1H471KBM	50V 470P
C790	ECA1AKF820E	10V 82U
C803, 804	ECBT1H102KB5	50V 1000P
C807, 808	ECBT1H331KB5	50V 330P
C809, 810	ECBT1H121KB5	50V 120P
C811, 812	ECEA0JKA470B	6.3V 47U
C813, 814	ECEA1AKA220B	10V 22U
C815, 816	ECBT1H101KB5	50V 100P

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0266-K	CABINET	
2	RFKGLCH510EK	FRONT PANEL ASS'Y	
2-1	RKW0346-V	FL PANEL	
3	RFKJLCA1060E	BOTTOM BOARD ASS'Y	
3-1	RKA0011-3	FOOT	
4	RGR0195A-A	REAR PANEL	
5	RGK0648-K	TRAY PANEL	
6	RMN0195	FL SPACER	
7	RMN0276	FL HOLDER	
8	RWJ5414120EE	FPC(14P)	
9	RGL0238-Q	LEADING LIGHT PANEL	
10	RGU1075-K	MAIN BUTTON	
11	XTBS26+8J	SCREW	
12	RMB0370	SPRING	
13	SHE185-2	P. C. B. SPACER	
14	REX0510	LEAD CABLE(6P)	
15	REZ0537	FPC(23P)	
16	XTB3+16JFZ	SCREW	
17	RHD30007	SCREW	
18	XTBS3+8JFZ1	SCREW	
19	XTB3+8FFZ	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING UNIT PARTS	
101	RFKJLCH505BK	CHASSIS ASS'Y	
101A	RDG0142	LOADING GEAR	
101B	RDG0193	LOADING GEAR(1)	
101C	RDP0065	PULLEY	
102	REM0019	MOTOR ASS'Y	
103	RMA0339	HOLDER	
104	RME0063	LOCK LEVER SPRING	
105	RME0087	SPRING	
106	RMG0158	BELT	
107	RML0177	CONVERSION LEVER	
108	RML0178-1	LOCK LEVER	
109	RMM0059-1	SLIDE PLATE(2)	
110	RMM0079	SLIDE PLATE(1)	
111	XTN26+6G	SCREW	
112	XYN2+F6FZ	SCREW	
113	RDB0036	GUIDE HOLDER	
114	RHD20010	SCREW	
115	RMU0046	GUIDE SHAFT	
116	RHM245ZA	MAGNET	
117	RFKNACH350EK	DISC CLAMPER ASS'Y	
118	RMR0334	MAGNET HOLDER	
119	RXQ0123	DISC HOLDE	
120	RFKNLPG440-K	DRIVE RUCK ASS'Y	
121	RGQ0088-K1	DISC TRAY	
122	RHD20009-1	SCREW	
123	XTB3+25GFZ	SCREW	
124	XTN26+6G	SCREW	
125	XTN3+8JFZ	SCREW	
126	RAE0113Z	TRAVERSE UNIT ASS'Y	
126A	SHGD112	RUBBER	
126B	SHGD113-1	RUBBER	
126C	XQS17+A35FZ	SCREW	
127	RME0109	SPRING(A)	
128	RMS0123-1	PIN(A)	
129	RMS0350	PIN(B)	
130	RMR0698-K	TRAVERSE CHASSIS	
131	XTV2+6G	SCREW	
132	RME0142	SPRING(B)	

Cabinet Parts Location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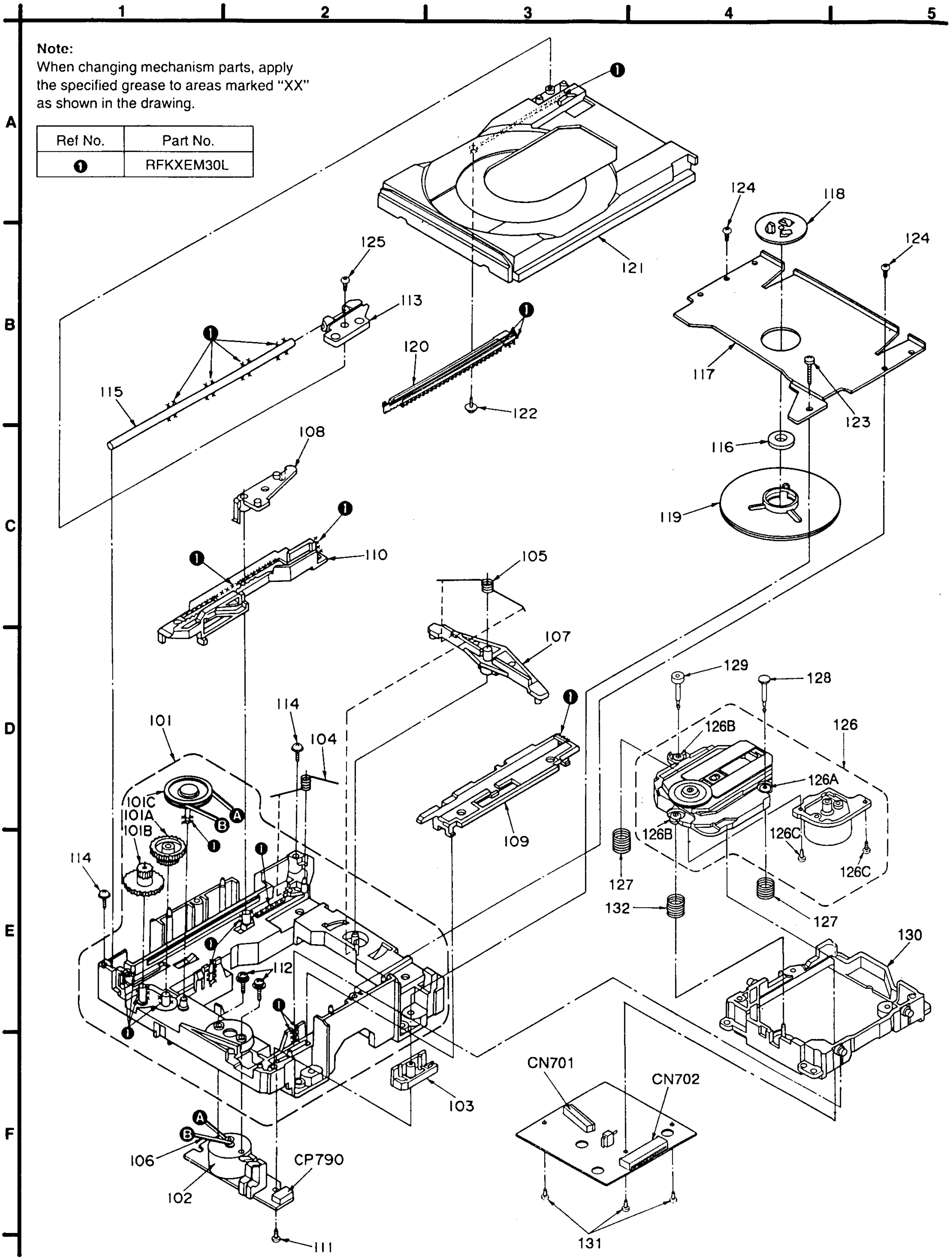
■ Loading Unit Parts Location

Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref No.	Part No.
❶	RFKXEM30L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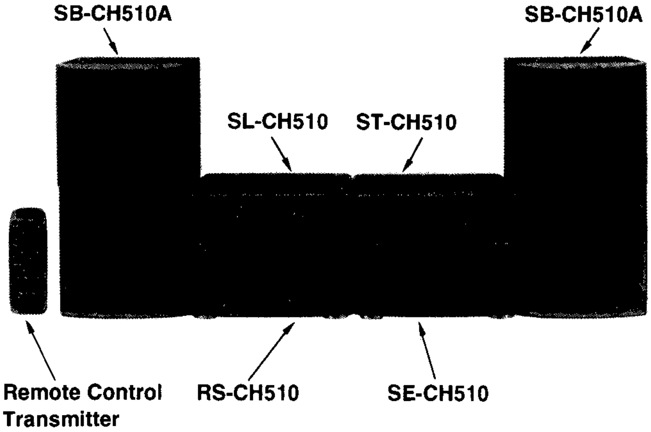
❶
109
126B
126C
114
127
126C
132
127
130
112
❶
❶
❶
❶
CN701
CN702
103
Ⓐ
Ⓑ
106
CP790
102
131
111

ORDER NO. AD9407189C8

Service Manual

Cassette Deck
RS-CH510

*1
DOLBY B NR



Colour

(K) .... Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe, Asia, Latin America, Middle Near East and Africa and Oceania	(K)

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System: SC-CH510

*1 : Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

AR-1 MECHANISM SERIES

Specifications

Deck system	Stereo cassette deck
Track system	4 track, 2 channel
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase
Heads	
Deck 1 (Playback head)	Permalloy head
Deck 2 (Recording/Playback head)	Permalloy head
(Erasing head)	Double gap ferrite head
Motors	
Deck 1, 2	
Capstan drive	DC servo motor
Reel table drive	DC motor
Tape speed	4.8 cm/sec
Wow and flutter	0.1% (WRMS)
Fast forward and rewind times	Approx. 50 seconds with C-60 cassette tape

Frequency response	
(Dolby NR off, CCRT on)	
NORMAL	20 Hz – 17 kHz 30 Hz – 15 kHz (DIN)
CrO2	20 Hz – 18 kHz 30 Hz – 17 kHz (DIN)
METAL	20 Hz – 20 kHz 30 Hz – 19 kHz (DIN)
S/N (Signal level = max recording level, CrO2)	
NR off	56 dB (A weighted)
Dolby NR on	66 dB (CCIR)
Input sensitivity and impedance	
LINE IN	126 mV/17.6 kΩ
Output voltage and impedance	
LINE OUT	400 mV/220 Ω

■ General

Dimensions (W × H × D)	270 × 118.5 × 263 mm
Weight	2.85 kg

Notes:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

System	Tuner/sound processor	Compact disc player	Amplifier	**Cassette Deck**	Speakers
SC-CH510	ST-CH510	SL-CH510	SE-CH510	**RS-CH510**	*2 SB-CH510A

Technics®

*2: For Europe .... Made in PAES
For other areas .... Made in NABEL

■ Contents

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- Operation Check and Main Component Replacement Procedures .... 3~8
- Measurements and Adjustments .... 9~13
- Schematic Diagram .... 14~20
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- Function of IC Terminals 30, 31
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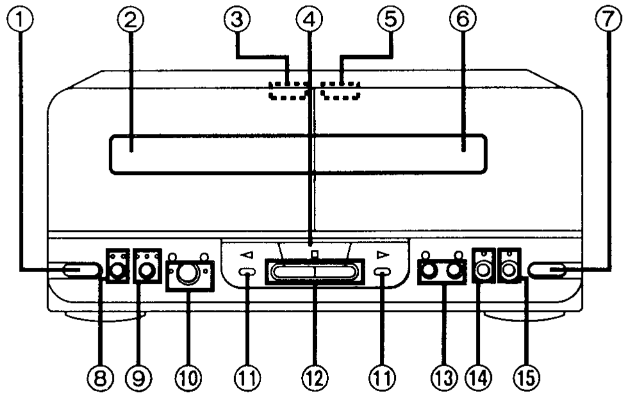
NOTE:
Refer to the service manual for Model No. SE-CH510 (ORDER No. AD9407197C8) for information on "Accessories", "Stacking the Components", "Connections" and "Packaging".

■ Location of Controls

① **Deck 1 holder open button**
② **Deck 1 cassette holder**
③ **Deck 1 holder close button**
④ **Stop button**
⑤ **Deck 2 holder close button**
⑥ **Deck 2 cassette holder**
⑦ **Deck 2 holder open button**
⑧ **Dolby noise reduction button and indicators**
⑨ **Reverse mode button and indicators**
⑩ **Deck 1/deck 2 select button and indicators**
⑪ **Playback buttons and indicators**
⑫ **Fast forward/rewind/tape program sensor buttons**
⑬ **One-touch tape edit buttons**
⑭ **Record pause button and indicator**
⑮ **CCRT button and indicator**



■ Operation Check and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Illustrated screws are equivalent to actual size.**
5. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

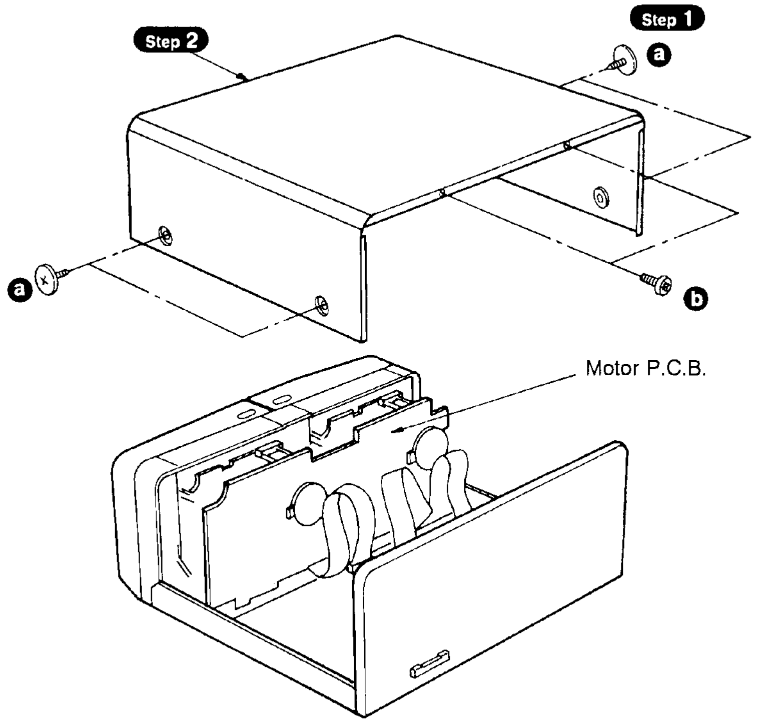
• Contents

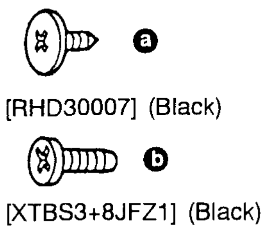
Page

- **Checking Procedure for each P.C.B.**
  - 1.Checking for the motor P.C.B. .... 3.
  - 2.Checking for the main P.C.B. .... 4.
  - 3.Checking for the operation P.C.B. .... 4, 5.
- **Main Component Replacement Procedures**
  - 1.Replacement for the head block and pinch roller unit .... 5, 6.
  - 2.Replacement for the belt, reel motor unit and capstan motor unit .... 7.
  - 3.Replacement for the parts mounted on mechanism P.C.B. and solenoid unit .... 8.

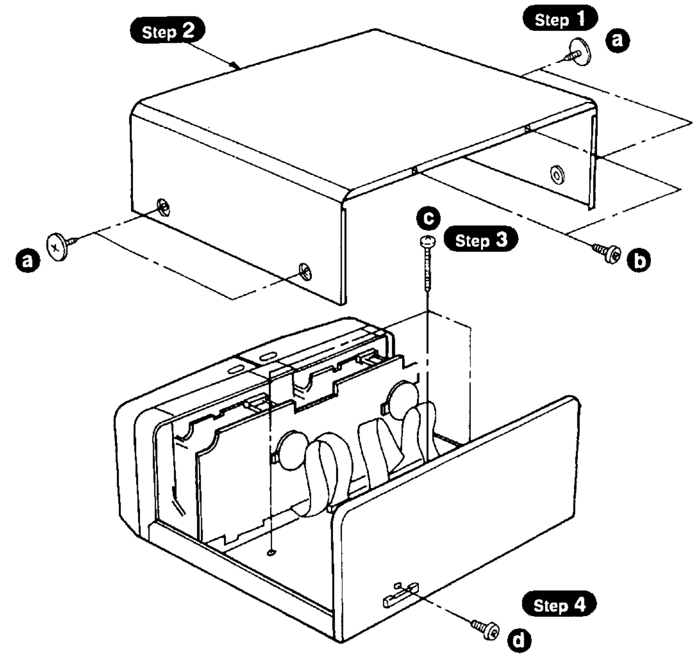
■ Checking Procedure for each P.C.B.

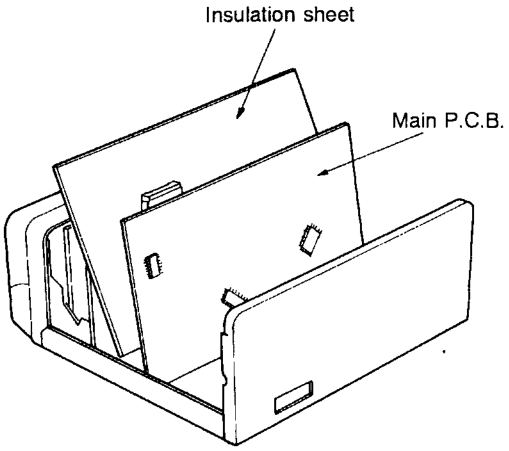
1. Checking for the motor P.C.B.

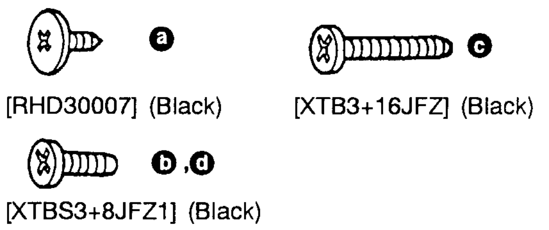




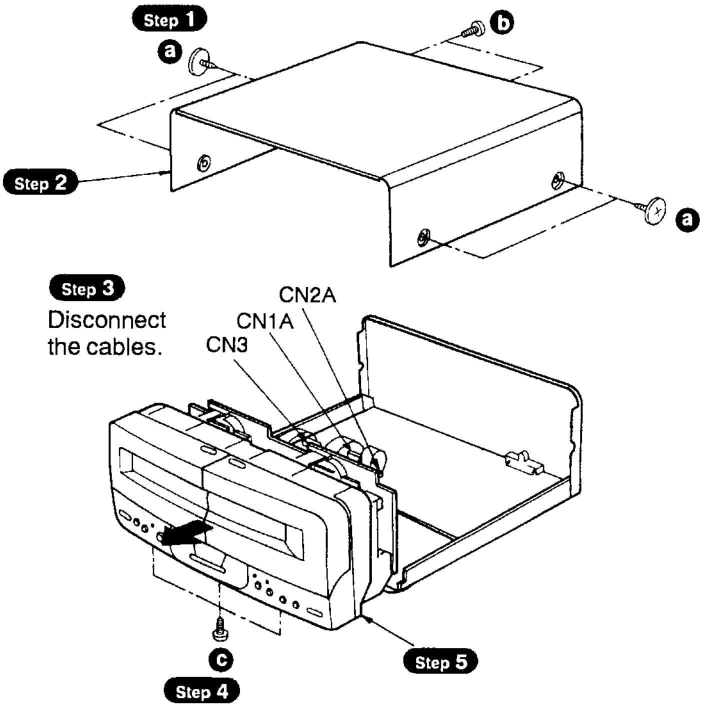
2. Checking for the main P.C.B.

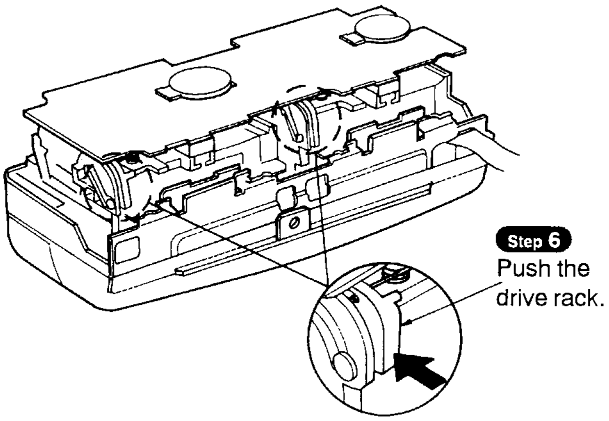

Step 2
Step 1
a
a
c
Step 3
b
Step 4
d

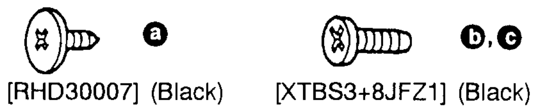

Insulation sheet
Main P.C.B.

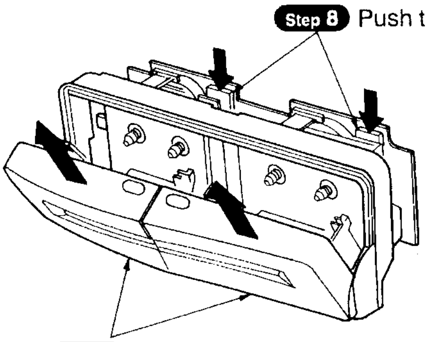

a
[RHD30007] (Black)
c
[XTB3+16JFZ] (Black)
b,d
[XTBS3+8JFZ1] (Black)

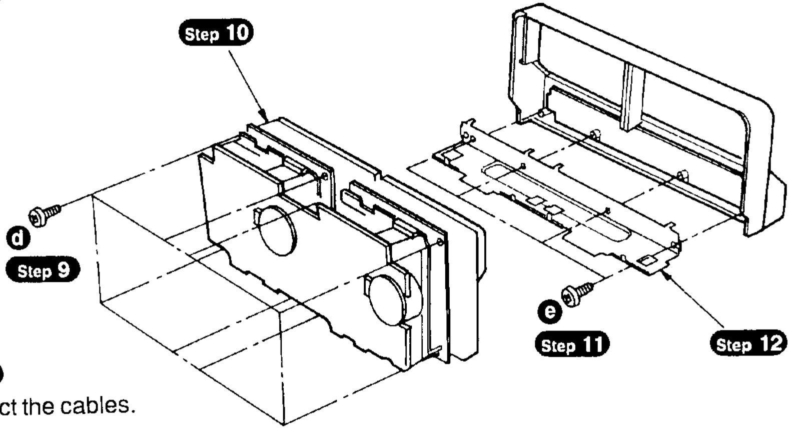
3. Checking for the operation P.C.B.

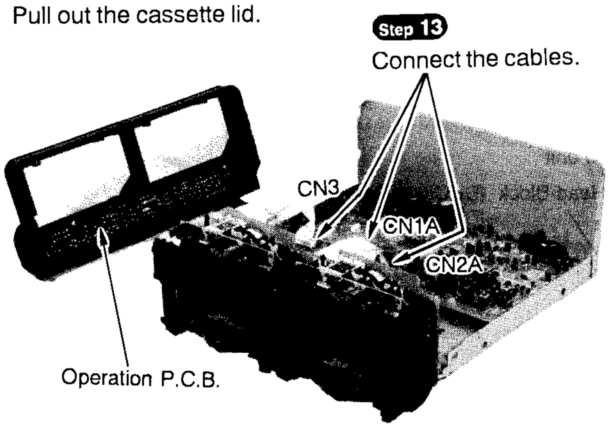

Step 1
a
b
Step 2
a
Step 3
Disconnect the cables.
CN2A
CN1A
CN3
c
Step 4
Step 5


Step 6
Push the drive rack.


a
[RHD30007] (Black)
b,c
[XTBS3+8JFZ1] (Black)


Step 8 Push the drive rack.
Step 7
Pull out the cassette lid.


Step 10
d
Step 9
e
Step 11
Step 12


Step 13
Connect the cables.
CN3
CN1A
CN2A
Operation P.C.B.

[XTB3+10JFZ]

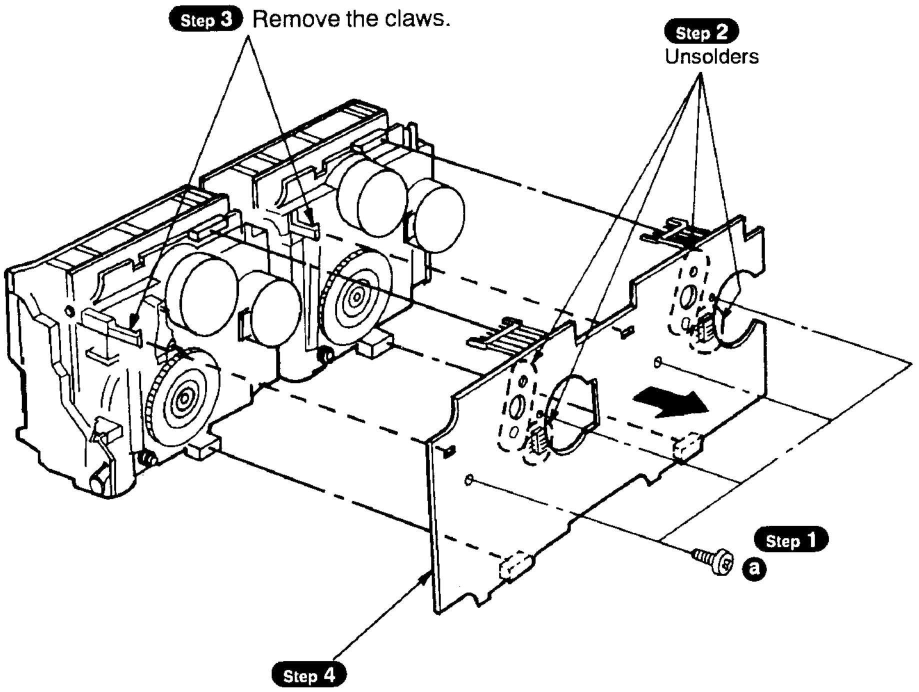
[XTBS26+8J]

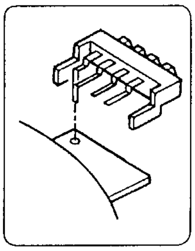
■ Main Component Replacement Procedures

1. Replacement for the head block and pinch roller unit

[XTW2+6S]

- Follow the **Step 1** ~ **Step 10** of the item 3 in checking procedure for each P.C.B. on page 4, 5.

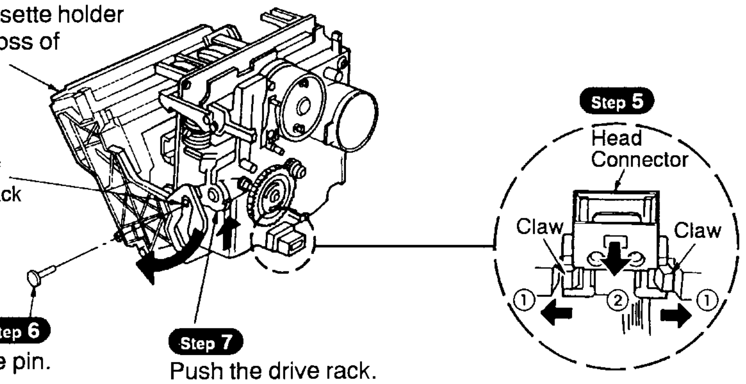

Step 3 Remove the claws.
Step 2
Unsolders
Step 1
a
Step 4



NOTE

Handle the connector with care so that the shape of terminal is different from others.

[XTW2+5L]

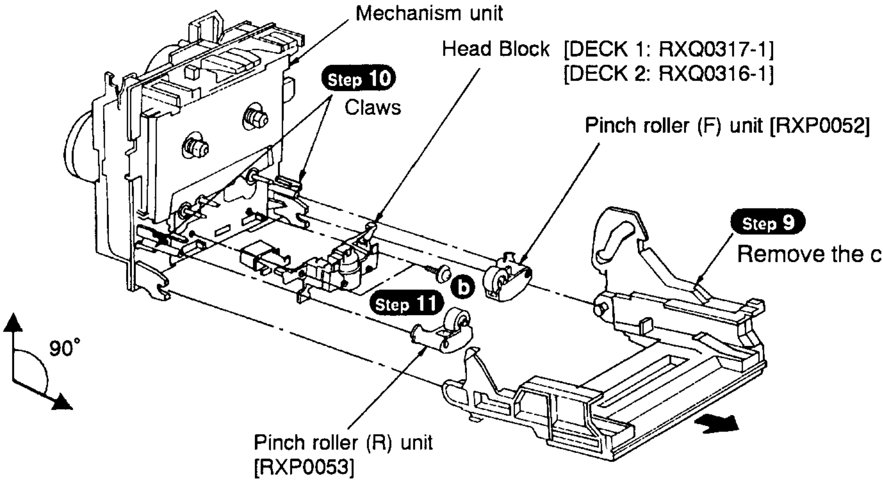

Step 8
Boss of drive rack
Step 6
Step 7
Step 5
Head Connector
Claw
Claw
①
②
①

Step 8 Remove the cassette holder ass'y from the boss of drive rack.

Step 6 Pull out the pin.

Step 7 Push the drive rack.

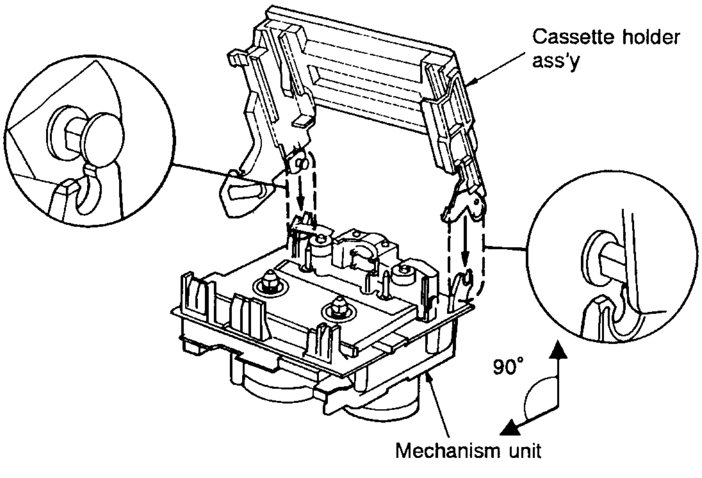
Step 5


Mechanism unit
Head Block [DECK 1: RXQ0317-1]
[DECK 2: RXQ0316-1]
Step 10
Claws
Pinch roller (F) unit [RXP0052]
Step 9
ⓑ
Step 11
90°
Pinch roller (R) unit
[RXP0053]

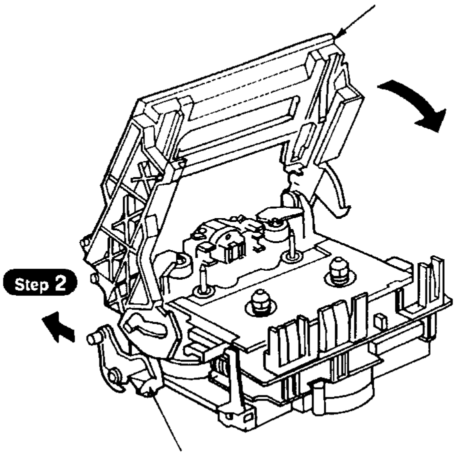
Step 9 Remove the cassette holder ass'y.

Installation of the cassette holder ass'y after replacement

Step 1 Locate the cassette holder ass'y and mechanism unit at a 90 degree angle, and then install the cassette holder ass'y.

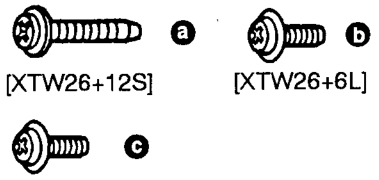

Cassette holder ass'y
90°
Mechanism unit

Step 3 Close the cassette holder ass'y.



Force this point of drive rack.

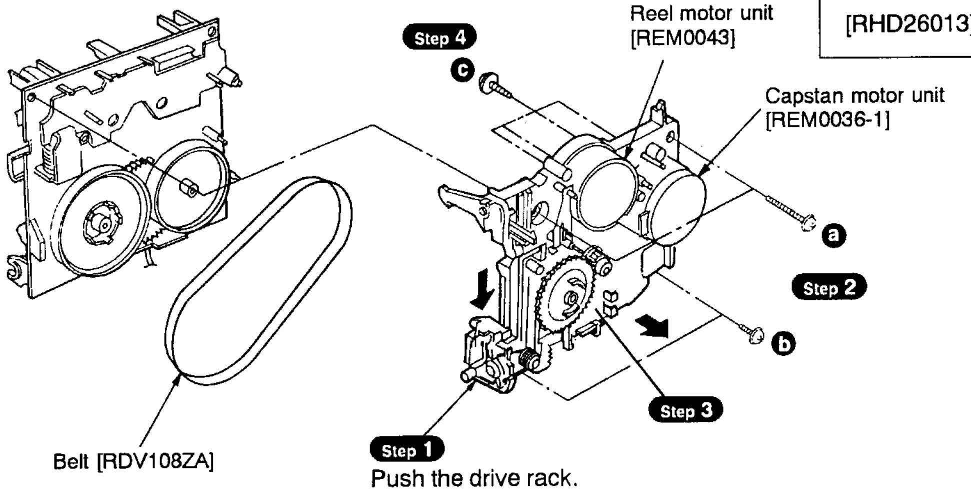
2. Replacement for the belt, reel motor unit and capstan motor unit



[XTW26+12S] [XTW26+6L]

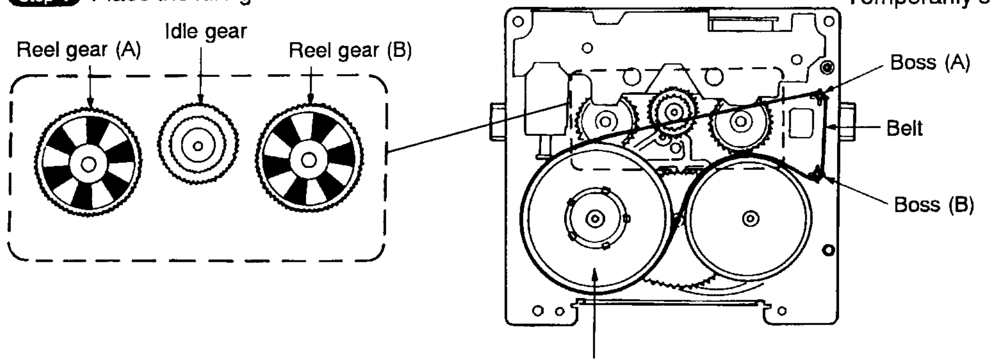
[RHD26013]

- Follow the Step 1 ~ Step 8 of item 1 in main component replacement procedures on page 5, 6.


Step 4
c
Reel motor unit
[REM0043]
Capstan motor unit
[REM0036-1]
a
Step 2
b
Step 3
Belt [RDV108ZA]

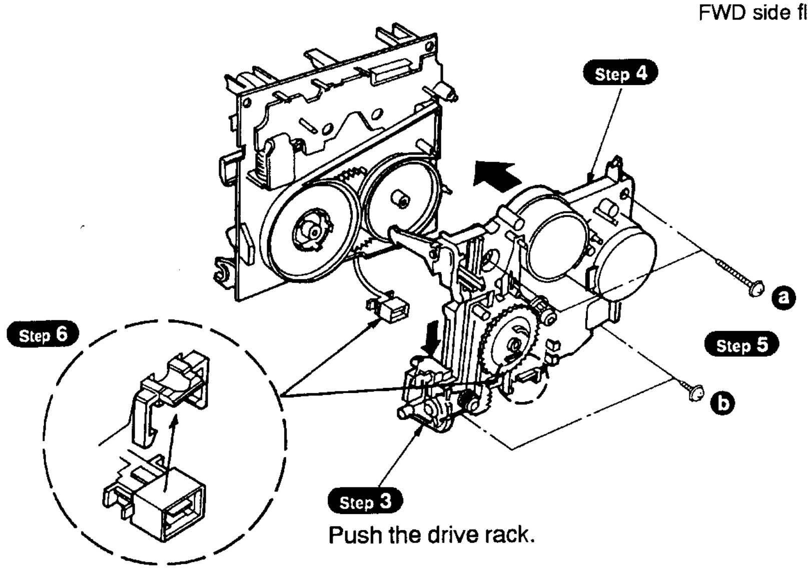
Step 1 Push the drive rack.

Installation of the sub chassis ass'y after replacement


Idle gear
Reel gear (A)
Reel gear (B)
Boss (A)
Belt
Boss (B)
FWD side flywheel ass'y

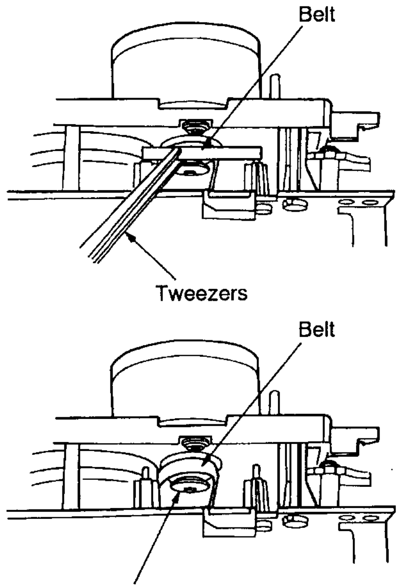
Step 1 Place the idle gear in the center.

Step 2 Temporarily secure the belt.


Step 4
a
Step 5
b
Step 6

Step 3 Push the drive rack.

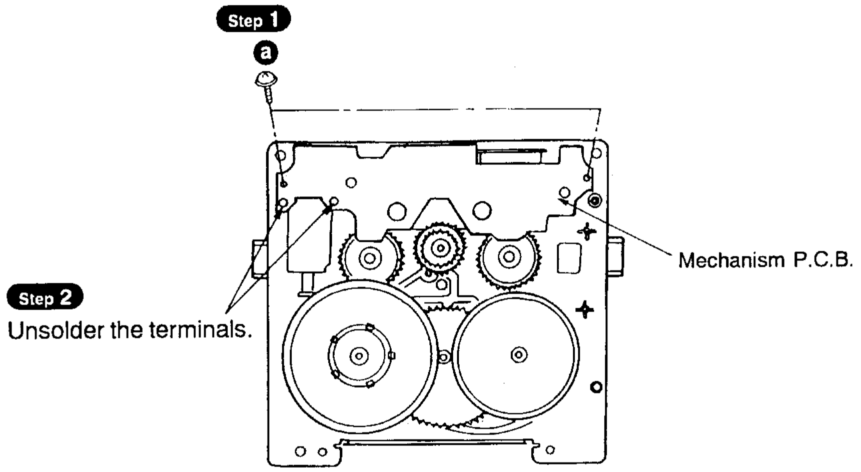
Step 7 Secure the belt with the capstan motor pulley.


Belt
Tweezers
Belt
Capstan motor pulley

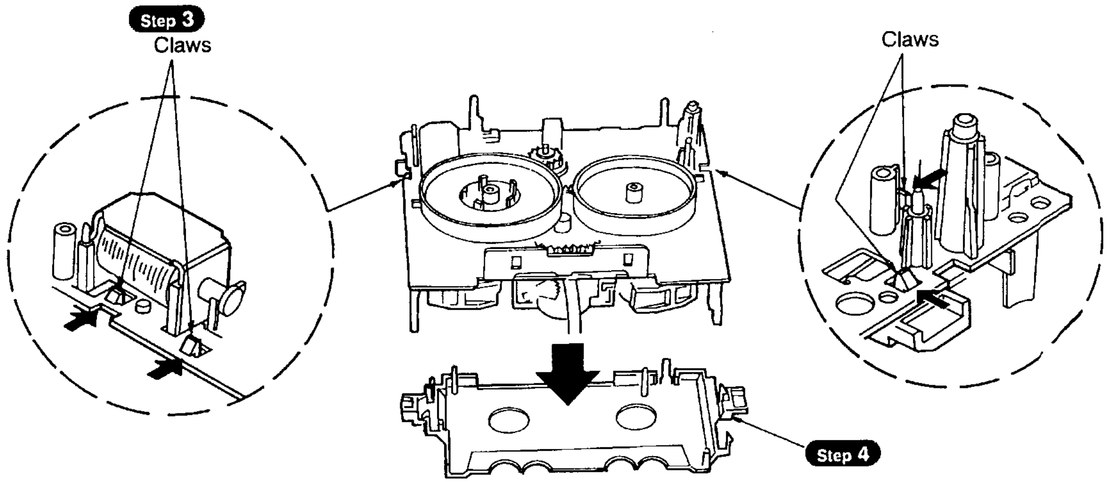
[XTW26+12S] [XTW26+6L]

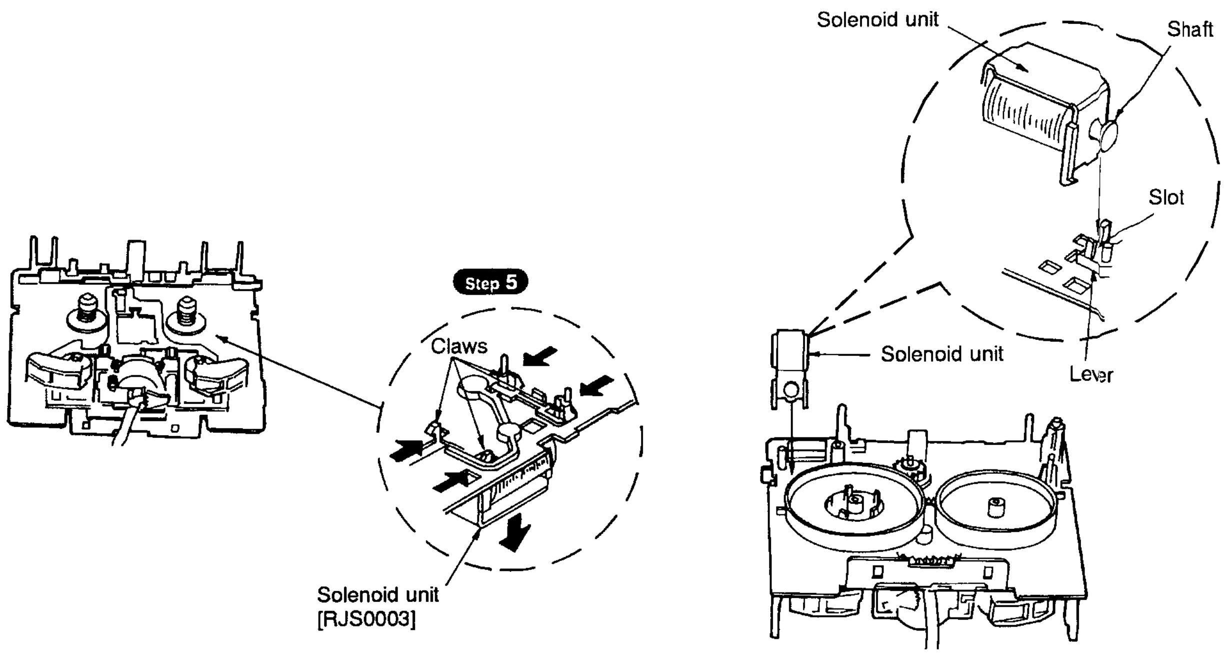
3. Replacement of the parts mounted on mechanism P.C.B. and solenoid unit

- Follow the Step 1 ~ Step 3 of item 2 in main component replacement procedures on page 7.


Step 1
a
Mechanism P.C.B.

Step 2 Unsolder the terminals.


Step 3
Claws
Claws
Step 4


Solenoid unit
Shaft
Slot
Step 5
Claws
Solenoid unit
Lever
Solenoid unit
[RJS0003]

[XTW2+6S]

NOTE

Notice for installing the solenoid unit

- The shaft of solenoid unit should be aligned with the slot of lever.

■ Measurements an Adjustments

This unit RS-CH510 is designed to operate on power supplied from the Amplifier (SE-CH510) through Tuner/Sound Processor (ST-CH510).
When connecting the unit to other system components, do not connect to the Amplifier (SE-CH510) directly. Be sure to connect this unit through the Tuner/Sound Processor (ST-CH510).
When operating the unit RS-CH510 alone for testing and servicing, without having power supplied from the Amplifier (SE-CH510) and the Tuner/Sound Processor (ST-CH510), use the following method.

● To Supply Power Source

1. Short test points between TP604 and TP605, and TP606 and TP607 at the resistor **R609** as shown in Fig. 1.
2. Apply 11 V AC power to test points between TP601 and TP602 (GND), and TP603 and TP602 (GND).
   (10 V AC power can be also applied when using adjustment tool for power supply.)

● To Check Signals

Connect an oscilloscope or a built-in amplifier speaker between line output for L-ch (TP3) and jumper (TP5), and line out for R-ch (TP4) and jumper (TP5) and check if the signals are outputting from this unit.

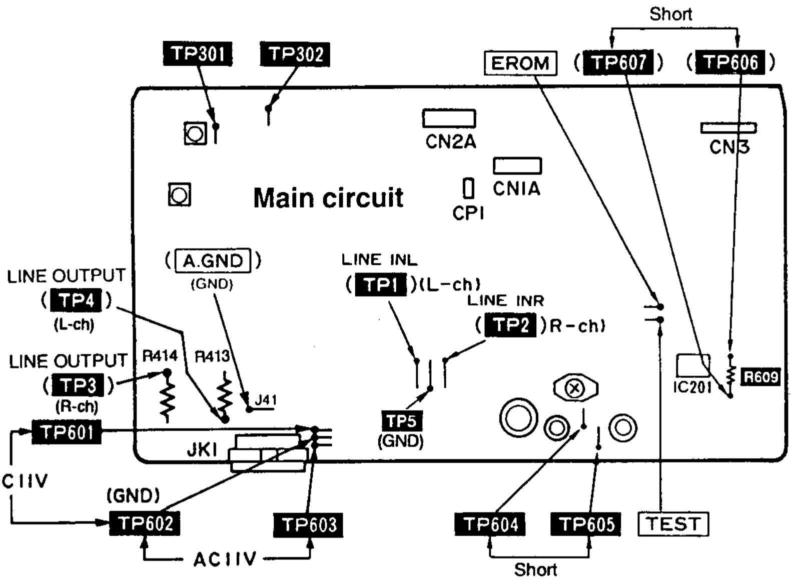

Short
TP301
TP302
EROM
(TP607)
(TP606)
CN2A
CN3
CNIA
CPI
Main circuit
(A.GND)
(GND)
LINE OUTPUT
(TP4)
(L-ch)
LINE OUTPUT
(TP3)
(R-ch)
R414
R413
J41
LINE INL
(TP1)(L-ch)
LINE INR
(TP2)R-ch)
TP5
(GND)
IC201
R609
TP601
JKI
AC 11V
(GND)
TP602
TP603
AC 11V
TP604
TP605
TEST
Short

Fig. 1

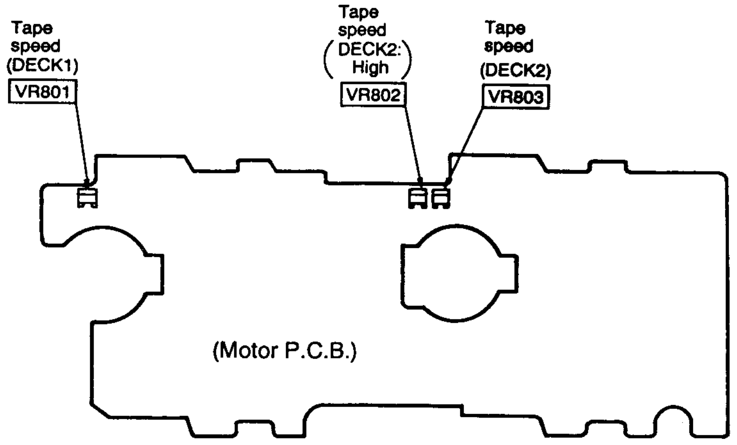

Tape speed (DECK1)
VR801
Tape speed (DECK2: High)
VR802
Tape speed (DECK2)
VR803
(Motor P.C.B.)

Fig. 2

Measurement Condition

- Reverse-more selector switch; ⇄
- Dolby NR switch; OFF
- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature 20±5°C (68±9°F)

Measuring instrument

- EVM (Electronic Voltmeter)
- AF oscillator
- Digital frequency counter

Test tape

- Head azimuth adjustment (8 kH, -20 dB); QZZCFM
- Tape speed adjustment (3 kHz, -10 dB); QZZCWAT
- Playback gain adjustment (315 Hz, 0 dB); QZZCFM
- Recording frequency response adjustment; QZZCRA (Normal blank Tape)

HEAD AZIMUTH ADJUSTMENT (DECK 1/2)

1. Connect the measuring instrument as shown in Fig. 3.
2. Replace azimuth screws for both forward and reverse direction after removing the screw-locking bond left on the head base.
   Fine adjustment of azimuth can not be performed with remaining the bond on the head base.
   (Supply part No. of azimuth adjusting screw: **RHD17015**)
3. Playback the azimuth adjustment portion (8 kHz, -20 dB) of test tape (QZZCFM). Adjust the azimuth adjusting screw until the outputs of the L/R-ch are maximized. (Refer to Fig. 4.)
4. Perform the same adjustment in reverse playback mode.

Check of the level difference forward and reverse directions

5. Playback the playback gain adjustment portion (315 Hz, 0 dB) of test tape (QZZCFM). Check if level difference between forward and reverse direction is within 1 dB.
6. After the adjustment, apply screwlock to the azimuth adjusting screw.

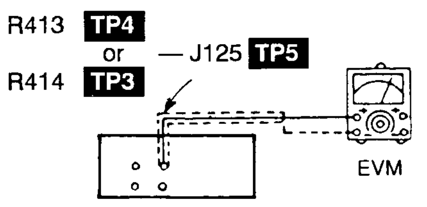

R413 TP4
or
R414 TP3
— J125 TP5
EVM

Fig. 3

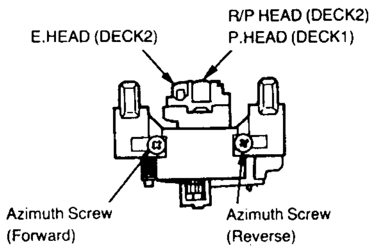

E.HEAD (DECK2)
R/P HEAD (DECK2)
P.HEAD (DECK1)
Azimuth Screw (Forward)
Azimuth Screw (Reverse)

Fig. 4

TAPE SPEED ADJUSTMENT (DECK 1/2)

Normal speed (Standard value: 3000±45 Hz)

1. Playback the middle portion of the test tape (QZZCWAT).
2. Adjust Deck 1 = **VR801** and Deck 2 = **VR803** for the output value shown below. (Refer to Fig. 2.)

Adjustment target: 3000±15 Hz (NORMAL speed)
Standard value: 3000±45 Hz (NORMAL speed)

High speed [Set the unit to forward (FWD) mode.]

3. Short-circuit the TEST jumper ("DECK 1" or "DECK 2" indicator blinks).
4. Playback the middle portion on the test tape (QZZCWAT).
5. Press the one touch tape edit (High) button.
   This will set the high speed mode.
6. At that time, check if the output from DECK 1 is within the standard value.

Standard value: 6000±600 Hz (HIGH speed)

7. Adjust **VR802** so that the output frequency of DECK 2 is within **±30 Hz** for the value of the output frequency of DECK 1. (Refer to Fig. 2.)

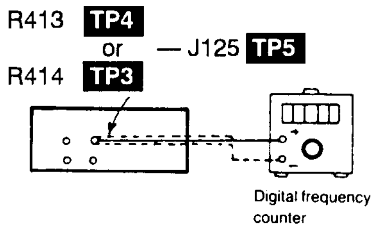

R413 TP4
or
R414 TP3
— J125 TP5
Digital frequency counter

Fig. 5

ERASE CURRENT CONFIRMATION (DECK2)

1. Short-circuit the TEST jumper.
2. Press the REC PAUSE button.
3. Check if the output at this time between the erase current confirmation point **TP301** and **TP302** (chassis) (the output on both edged of R301) is within the standard value. (Refer to Fig. 6.)

Standard value: 160±25 mA

4. Disconnect the TEST jumper from the frame ground.

NOTE:
The test tape is not required when confirming the erase current.

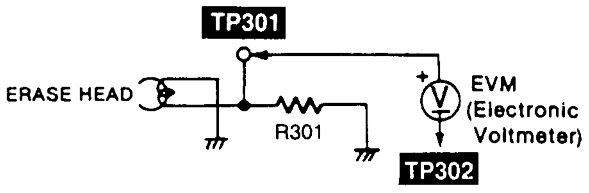

TP301
ERASE HEAD
R301
EVM (Electronic Voltmeter)
TP302

Fig. 6

The RS-CH510 can automatically adjust playback gain and rec./play frequency response & gain.

Automatic adjustment of playback gain and rec./play frequency response & gain

A microprocessor (IC701) used within the RS-CH510 automatically adjusts its playback gain and rec./play frequency response & gain (factory adjustment) and stores adjustment data to an EEPROM chip (IC702). (potentiometers have conventionally been used for these adjustments.)

Playback gain adjustment
Rec./play frequency response & gain adjustment
Microprocessor (IC701) (Auto adjustment) — EEPROM (IC702) (Data memory)
Conventionally adjusted with potentiometers.

If the EEPROM chip (IC702) or any of the head AF signal line components is replaced for servicing, the unit requires readjustment. (Refer to page 11, 12.)

●Preparation for making automatic adjustments

1. Find the beginning of the 315 Hz, 0 dB test signal recorded on the test tape (QZZCFM).
2. Switch off the power to the unit and then make the following connections.
   a) Connect an AF oscillator between **TP1** (LINE IN, left channel) and **TP5**, and between **TP2** (LINE IN, right channel) and **TP5**. (Refer to Fig. 1 and Fig. 7.)
   b) Connect an EVM (AC range) between **TP3** (LINE OUT, left channel) and **TP5**, and between **TP4** (LINE OUT, right channel) and **TP5**. (Refer to Fig. 1 and Fig. 7.)
   c) Connect EROM and TEST to the A. GND. (Refer to Fig. 1 and Fig. 8.)
      - When EROM is connected to the A. GND and the power is switched on, the memory of the EEPROM (IC702) will be erased.
      - When TEST is connected to the A. GND and the power is switched on, the unit will be in the adjustment mode.
3. Switch on the power to the unit. (Refer to page 9 for information on how to connect the power supply.)
   - The Deck 1/2 indicators and the CCRT indicator will begin flashing. (Refer to Fig. 9.)
4. Use the AF oscillator to apply a 315 Hz, -20 dB (100 mV) signal to the unit.
5. Without a tape inserted in either Deck 1 or Deck 2, hold the REC PAUSE button down and confirm that the signal is being output from **TP3** and **TP4**.
   - The signal is output from **TP3** and **TP4** only while the REC PAUSE button is held down. When the button is released, the output will stop.
6. Adjust the output of the AF oscillator so that the output from **TP3** and **TP4** becomes 400 mV, and then hold the REC PAUSE button down again for at least 5 seconds.
   - The reference signal will be stored in the memory of the EEPROM (IC702).
7. Release the REC PAUSE button.
8. Disconnect EROM from the A. GND.
   - Leave TEST connected to the A. GND.
   (The Deck 1/2 indicators are flashing at this time.)

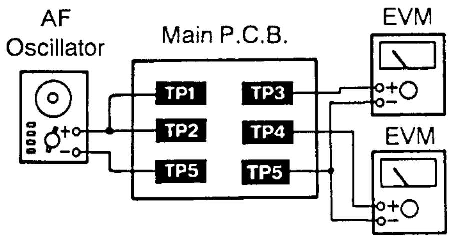


Fig. 7

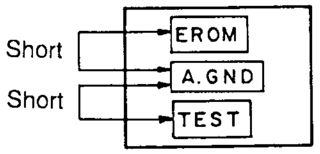


Fig. 8

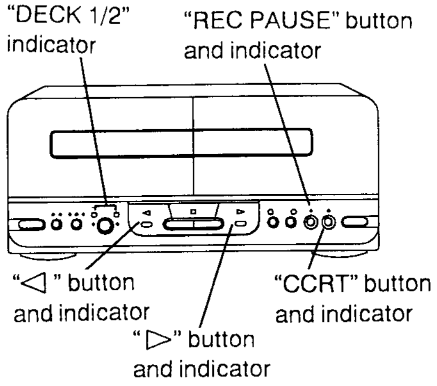
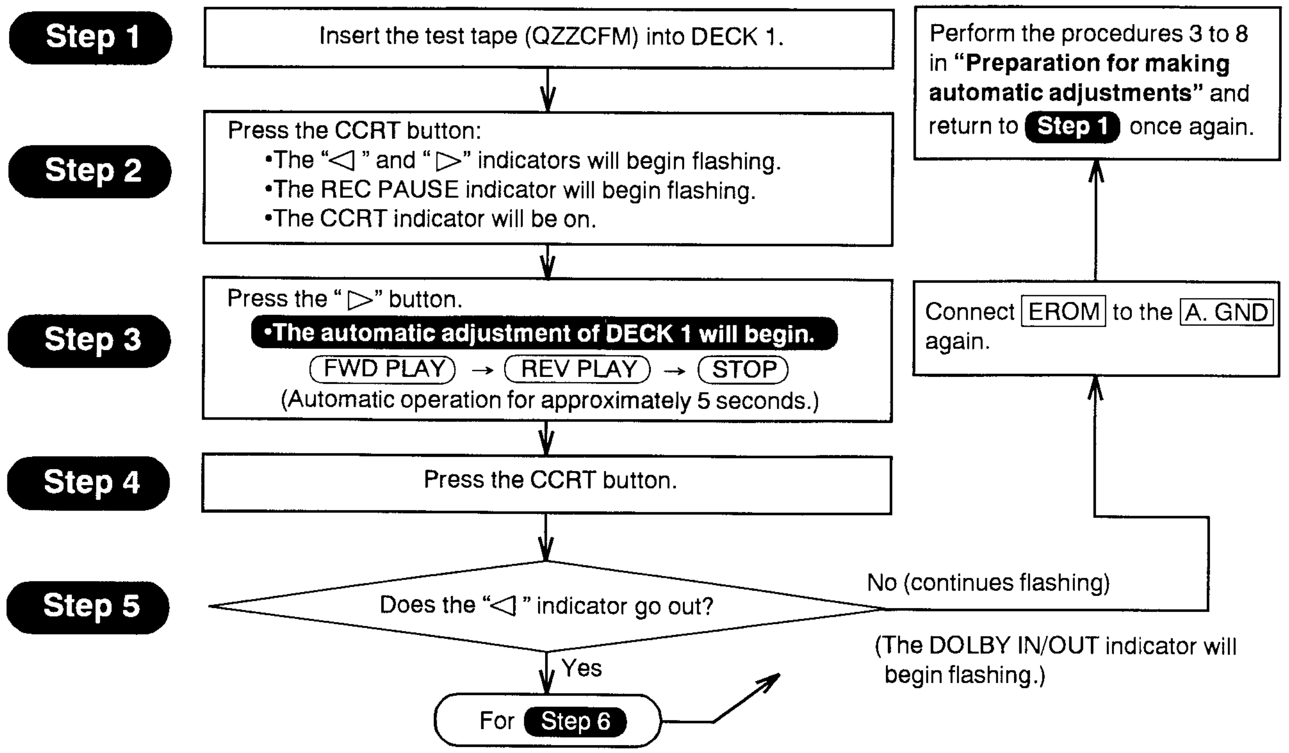


Fig. 9

●PLAYBACK GAIN ADJUSTMENT



Step 1 Insert the test tape (QZZCFM) into DECK 1.

Step 2 Press the CCRT button:
- The "◁" and "▷" indicators will begin flashing.
- The REC PAUSE indicator will begin flashing.
- The CCRT indicator will be on.

Step 3 Press the "▷" button.
•The automatic adjustment of DECK 1 will begin.
(FWD PLAY) → (REV PLAY) → (STOP)
(Automatic operation for approximately 5 seconds.)

Step 4 Press the CCRT button.

Step 5 Does the "◁" indicator go out?

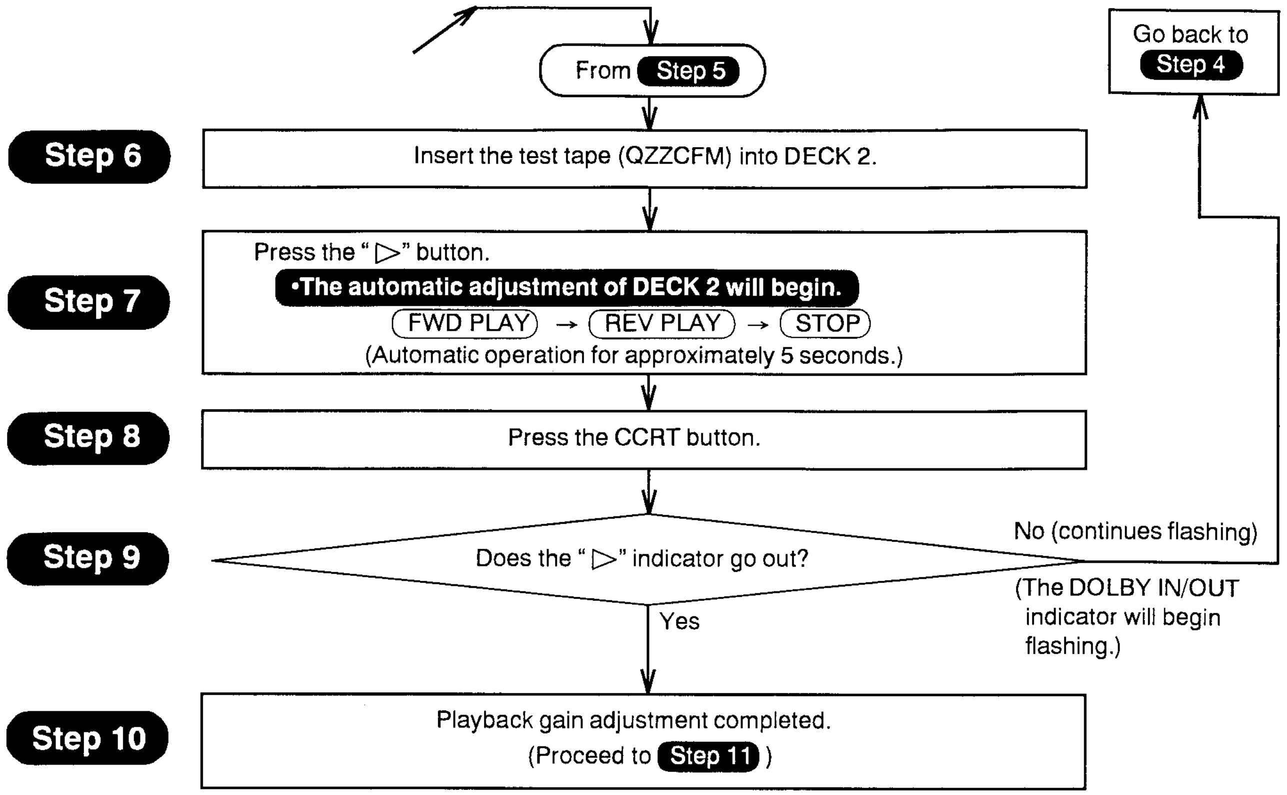
No (continues flashing)
(The DOLBY IN/OUT indicator will begin flashing.)

Connect EROM to the A. GND again.

Perform the procedures 3 to 8 in **"Preparation for making automatic adjustments"** and return to **Step 1** once again.

Yes

For **Step 6**



From **Step 5**

Step 6 Insert the test tape (QZZCFM) into DECK 2.

Step 7 Press the "▷" button.
•The automatic adjustment of DECK 2 will begin.
(FWD PLAY) → (REV PLAY) → (STOP)
(Automatic operation for approximately 5 seconds.)

Step 8 Press the CCRT button.

Step 9 Does the "▷" indicator go out?

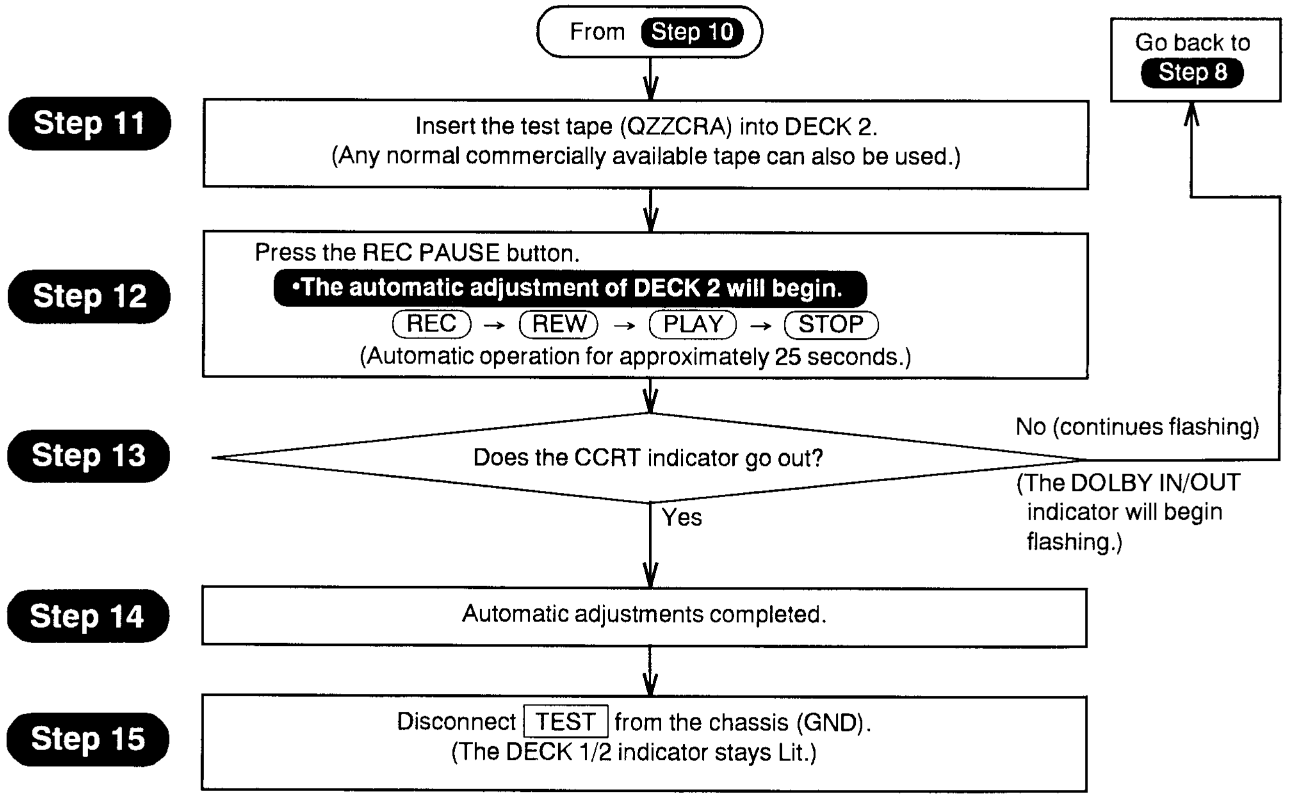
No (continues flashing)
(The DOLBY IN/OUT indicator will begin flashing.)

Go back to **Step 4**

Yes

Step 10 Playback gain adjustment completed.
(Proceed to **Step 11**)

●OVERALL GAIN ADJUSTMENT AND OVERALL FREQUENCY ADJUSTMENT



From **Step 10**

Step 11 Insert the test tape (QZZCRA) into DECK 2.
(Any normal commercially available tape can also be used.)

Step 12 Press the REC PAUSE button.
•The automatic adjustment of DECK 2 will begin.
(REC) → (REW) → (PLAY) → (STOP)
(Automatic operation for approximately 25 seconds.)

Step 13 Does the CCRT indicator go out?

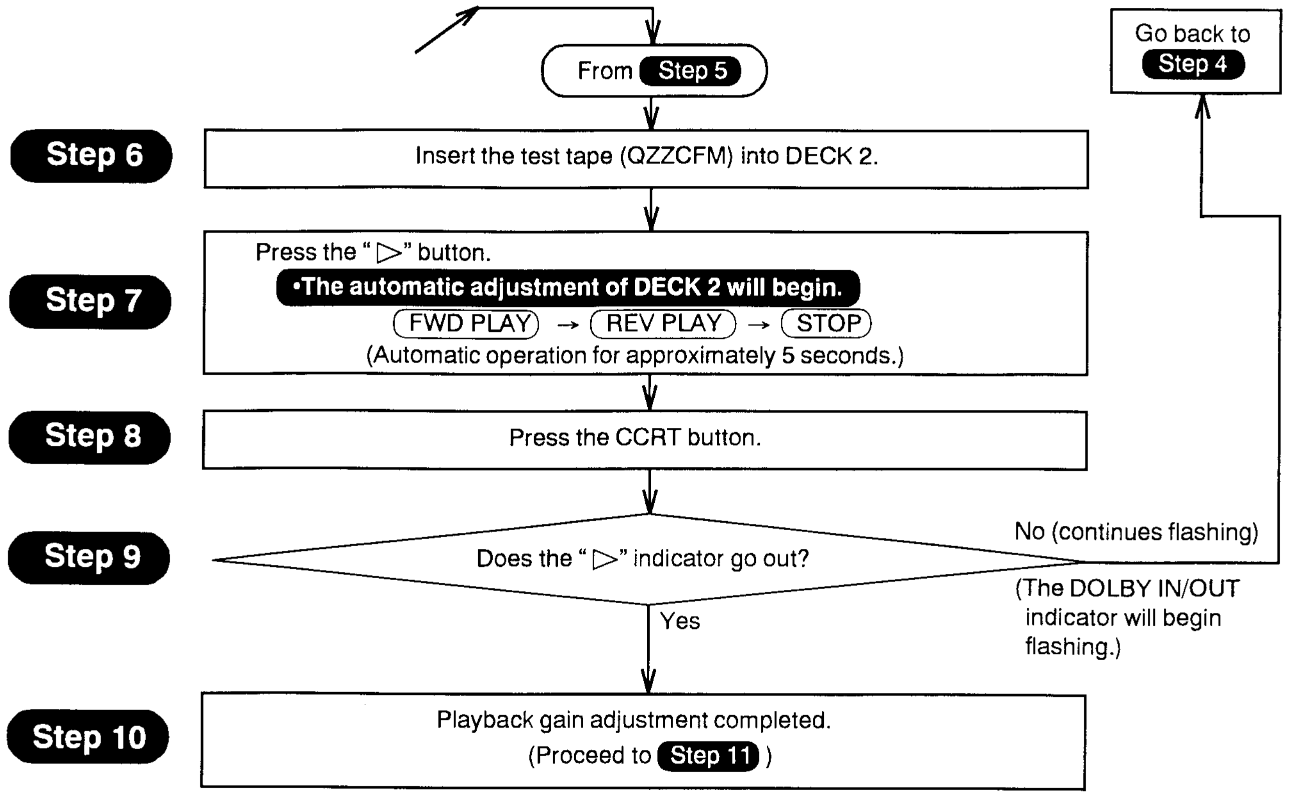
No (continues flashing)
(The DOLBY IN/OUT indicator will begin flashing.)

Go back to **Step 8**

Yes

Step 14 Automatic adjustments completed.

Step 15 Disconnect TEST from the chassis (GND).
(The DECK 1/2 indicator stays Lit.)



From Step 5

Step 6 Insert the test tape (QZZCFM) into DECK 2.

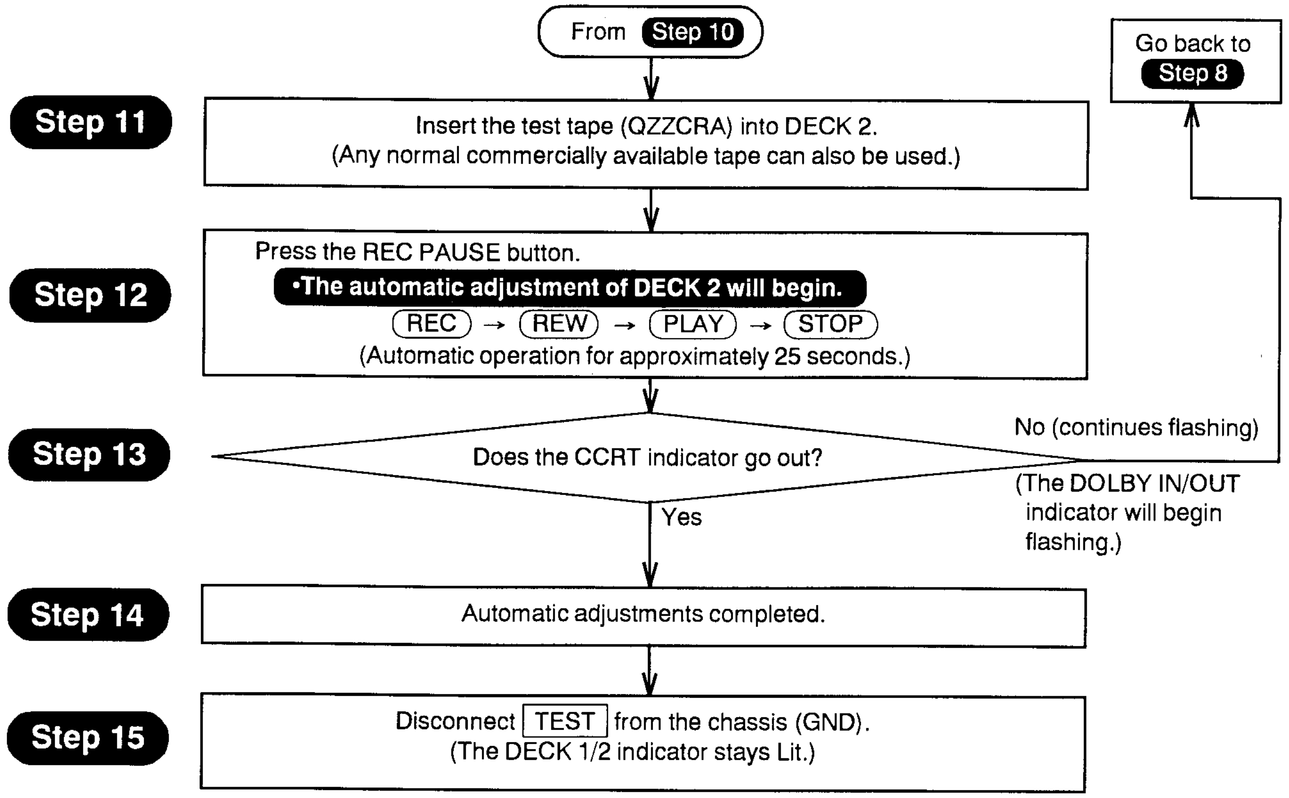
Step 7 Press the "▷" button.
•The automatic adjustment of DECK 2 will begin.
(FWD PLAY) → (REV PLAY) → (STOP)
(Automatic operation for approximately 5 seconds.)

Step 8 Press the CCRT button.

Step 9 Does the "▷" indicator go out?
No (continues flashing) (The DOLBY IN/OUT indicator will begin flashing.) → Go back to Step 4
Yes

Step 10 Playback gain adjustment completed.
(Proceed to Step 11)

●OVERALL GAIN ADJUSTMENT AND OVERALL FREQUENCY ADJUSTMENT



From Step 10

Step 11 Insert the test tape (QZZCRA) into DECK 2.
(Any normal commercially available tape can also be used.)

Step 12 Press the REC PAUSE button.
•The automatic adjustment of DECK 2 will begin.
(REC) → (REW) → (PLAY) → (STOP)
(Automatic operation for approximately 25 seconds.)

Step 13 Does the CCRT indicator go out?
No (continues flashing) (The DOLBY IN/OUT indicator will begin flashing.) → Go back to Step 8
Yes

Step 14 Automatic adjustments completed.

Step 15 Disconnect TEST from the chassis (GND).
(The DECK 1/2 indicator stays Lit.)

●Perform the following recording/playback frequency response and gain adjustment checks

1. Playback gain check

1-1. Find the start of the 315 Hz/0 dB section of the test tape (QZZCFM), insert the tape into Deck1 and 2, and play it back (FWD).

1-2. Confirm that the output between **TP3** / **TP4** and **TP5** agrees with the following rated value:
400 mV ± 0.5 dB

2. Playback frequency response check (Decks 1 and 2)

Playback the 315 Hz/-20 dB and 12.5 kHz to 63 Hz/-20 dB sections of the test tape (QZZCFM) and then, using the 315 Hz/-20 dB playback output as a reference (0 dB), confirm that the playback frequency response is within the range shown in Fig. 10.

Output points: between **TP3** / **TP4** and **TP5**.

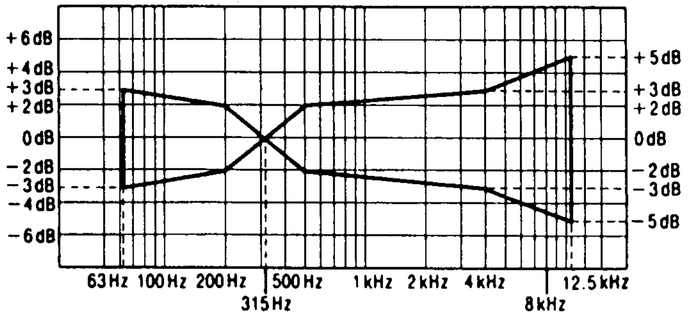


Fig. 10

3. Recording/playback frequency response and gain check

3-1. Insert a Normal-type blank tape (QZZCRA) into Deck 2.

3-2. Input a 1 kHz signal between **TP1** / **TP2** and **TP5**, and use the attenuator to set the output between **TP3** / **TP4** and **TP5** to 400 mV.

3-3. Record the 1 kHz signal.

3-4. Playback the recorded signal and confirm that the output between **TP3** / **TP4** and **TP5** agrees with the following rated value:
400 mV ± 1 dB

3-5. Without adjusting the output setting from step 3-2, use the attenuator to further attenuate the input signal by 20 dB and record signals of 50 Hz, 100 Hz, 300 Hz, 500 Hz, 3 kHz, 10 kHz and 12.5 kHz.

3-6. Playback the recorded signals and, using the 1kHz playback output as a reference (0 dB), confirm that the output between **TP3** / **TP4** and **TP5** confirms to the overall frequency response shown in Fig. 11.

3-7. Insert first a blank Chrome-type tape (QZZCRX) and then a blank Metal-type tape (QZZCRZ) into Deck 2.

3-8. Repeat steps 3-5 and 3-6 for each tape and confirm that the output for each conforms to the overall frequency response shown in Fig. 12.

Normal Overall frequency response chart (NR OUT)

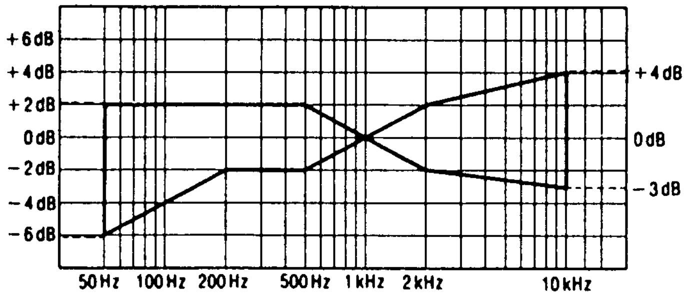


Fig. 11

CrO₂ Metal Overall frequency response chart (NR OUT)

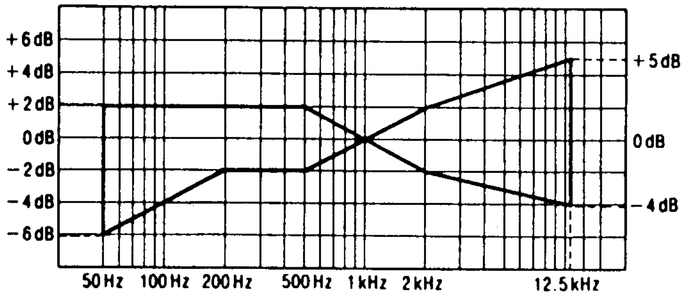
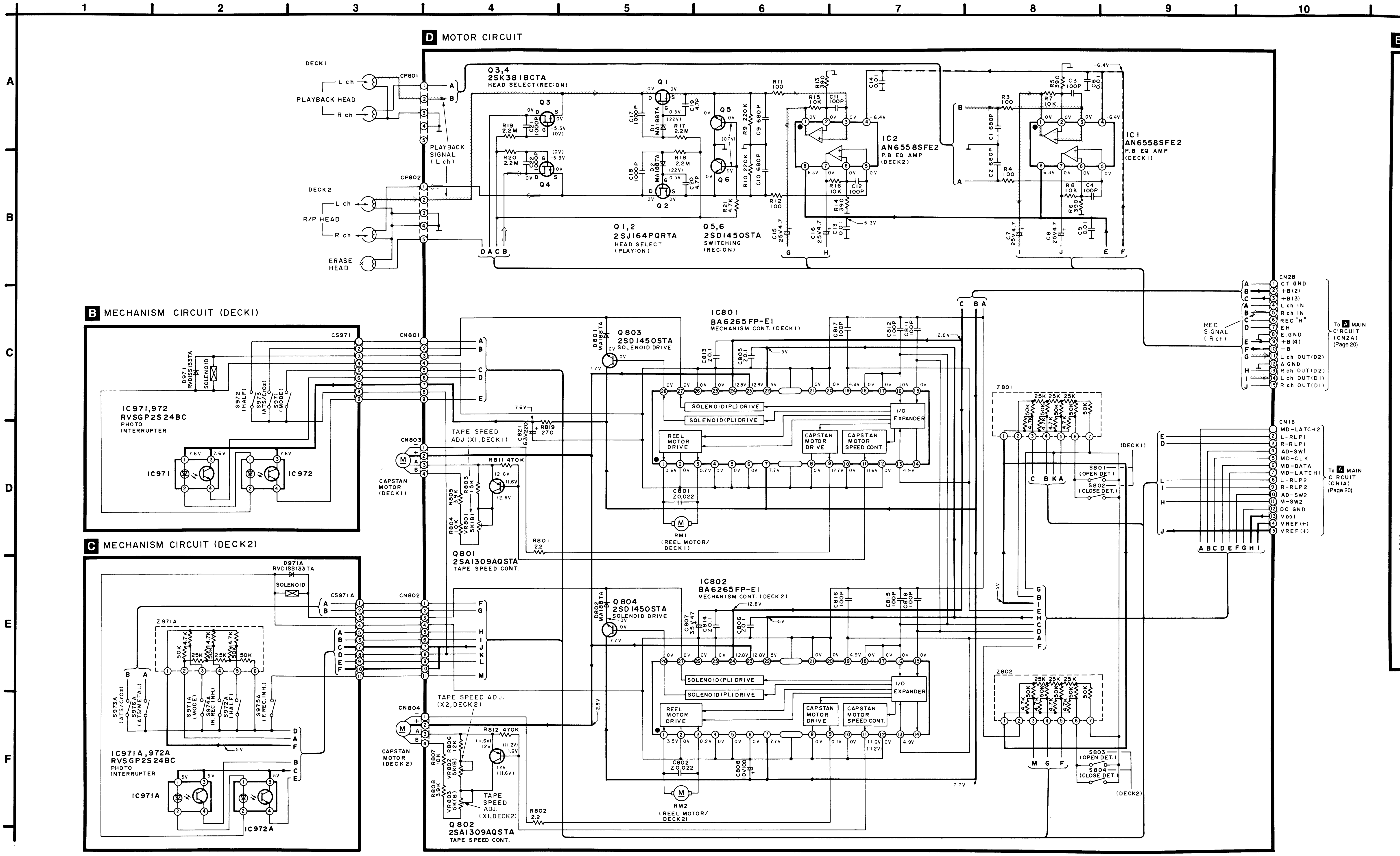


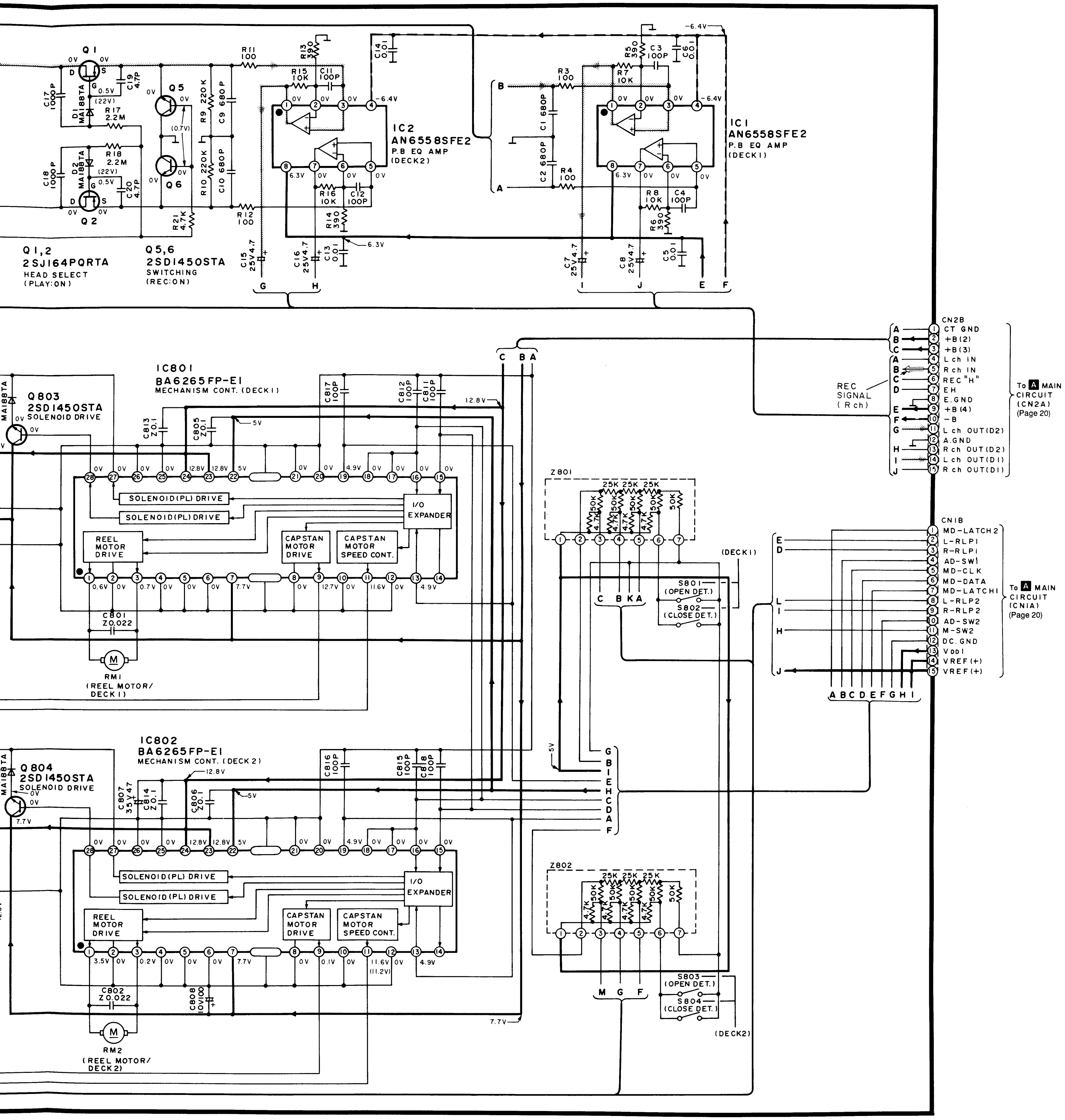
Fig. 12

■ Schematic Diagram • Mechanism (DECK 1), (DECK 2)/Mortor Control/Operation circuit (Parts list on Page 33~36)

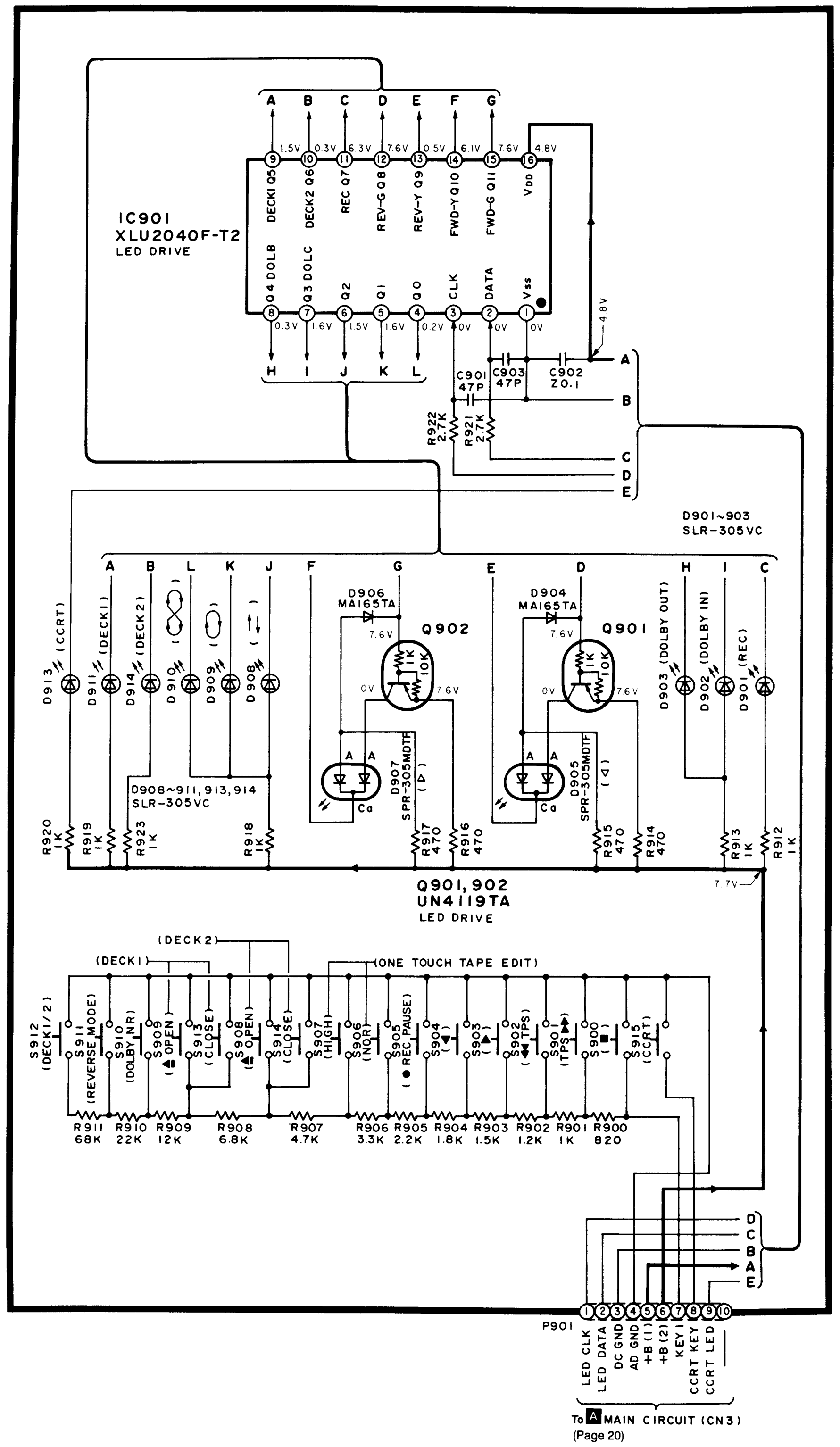

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
D MOTOR CIRCUIT
DECK1
PLAYBACK HEAD
L ch
R ch
CP801
PLAYBACK SIGNAL (L ch)
CP802
DECK2
R/P HEAD
ERASE HEAD
Q3,4
2SK381BCTA
HEAD SELECT(REC:ON)
Q1,2
2SJ164PQRTA
HEAD SELECT (PLAY:ON)
Q5,6
2SD1450STA
SWITCHING (REC:ON)
IC2
AN6558SFE2
P.B EQ AMP (DECK2)
IC1
AN6558SFE2
P.B EQ AMP (DECK1)
B MECHANISM CIRCUIT (DECK1)
CS971
CN801
D971 RVDISS133TA
SOLENOID
S972 (HALF)
S973 (ATS/CrO2)
S971 (MODE)
IC971,972
RVSGP2S24BC
PHOTO INTERRUPTER
IC971
IC972
C MECHANISM CIRCUIT (DECK2)
D971A RVDISS133TA
SOLENOID
CS971A
CN802
Z971A
S973A (ATS/CrO2)
S976A (ATS/METAL)
S971A (MODE)
S974A (R.REC.INH.)
S972A (HALF)
S975A (F.REC.INH.)
IC971A,972A
RVSGP2S24BC
PHOTO INTERRUPTER
IC971A
IC972A
Q803
2SD1450STA
SOLENOID DRIVE
D801 MA188TA
IC801
BA6265FP-E1
MECHANISM CONT. (DECK1)
SOLENOID(PL) DRIVE
SOLENOID(PL) DRIVE
I/O EXPANDER
REEL MOTOR DRIVE
CAPSTAN MOTOR DRIVE
CAPSTAN MOTOR SPEED CONT.
C801 Z0.022
RM1 (REEL MOTOR/ DECK1)
CN803
CAPSTAN MOTOR (DECK1)
TAPE SPEED ADJ.(X1,DECK1)
Q801
2SA1309AQSTA
TAPE SPEED CONT.
Q804
2SD1450STA
SOLENOID DRIVE
D802 MA188TA
IC802
BA6265FP-E1
MECHANISM CONT. (DECK 2)
C802 Z0.022
RM2 (REEL MOTOR/ DECK2)
CN804
CAPSTAN MOTOR (DECK 2)
TAPE SPEED ADJ. (X2,DECK2)
TAPE SPEED ADJ. (X1,DECK2)
Q802
2SA1309AQSTA
TAPE SPEED CONT.
Z801
S801 (OPEN DET.)
S802 (CLOSE DET.)
(DECK1)
Z802
S803 (OPEN DET.)
S804 (CLOSE DET.)
(DECK2)
REC SIGNAL (R ch)
CN2B
CT GND
+B(2)
+B(3)
L ch IN
R ch IN
REC "H"
EH
E.GND
+B(4)
-B
L ch OUT(D2)
A.GND
R ch OUT(D2)
L ch OUT(D1)
R ch OUT(D1)
To A MAIN CIRCUIT (CN2A) (Page 20)
CN1B
MD-LATCH2
L-RLP1
R-RLP1
AD-SW1
MD-CLK
MD-DATA
MD-LATCH1
L-RLP2
R-RLP2
AD-SW2
M-SW2
DC.GND
Vdd1
VREF(+)
VREF(+)
To A MAIN CIRCUIT (CN1A) (Page 20)

ation circuit (Parts list on Page 33~36)

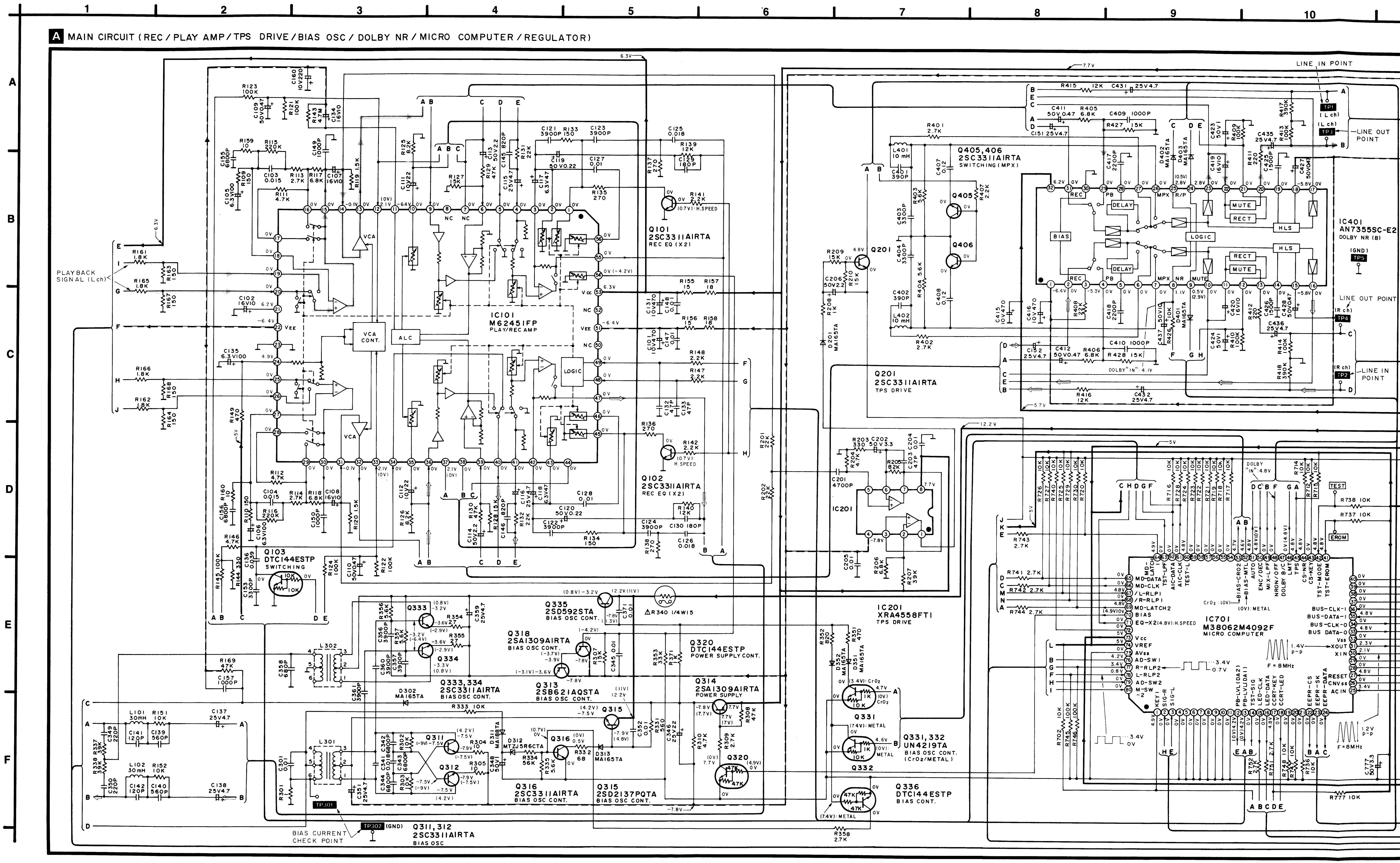
5 6 7 8 9 10 11 12 13 14

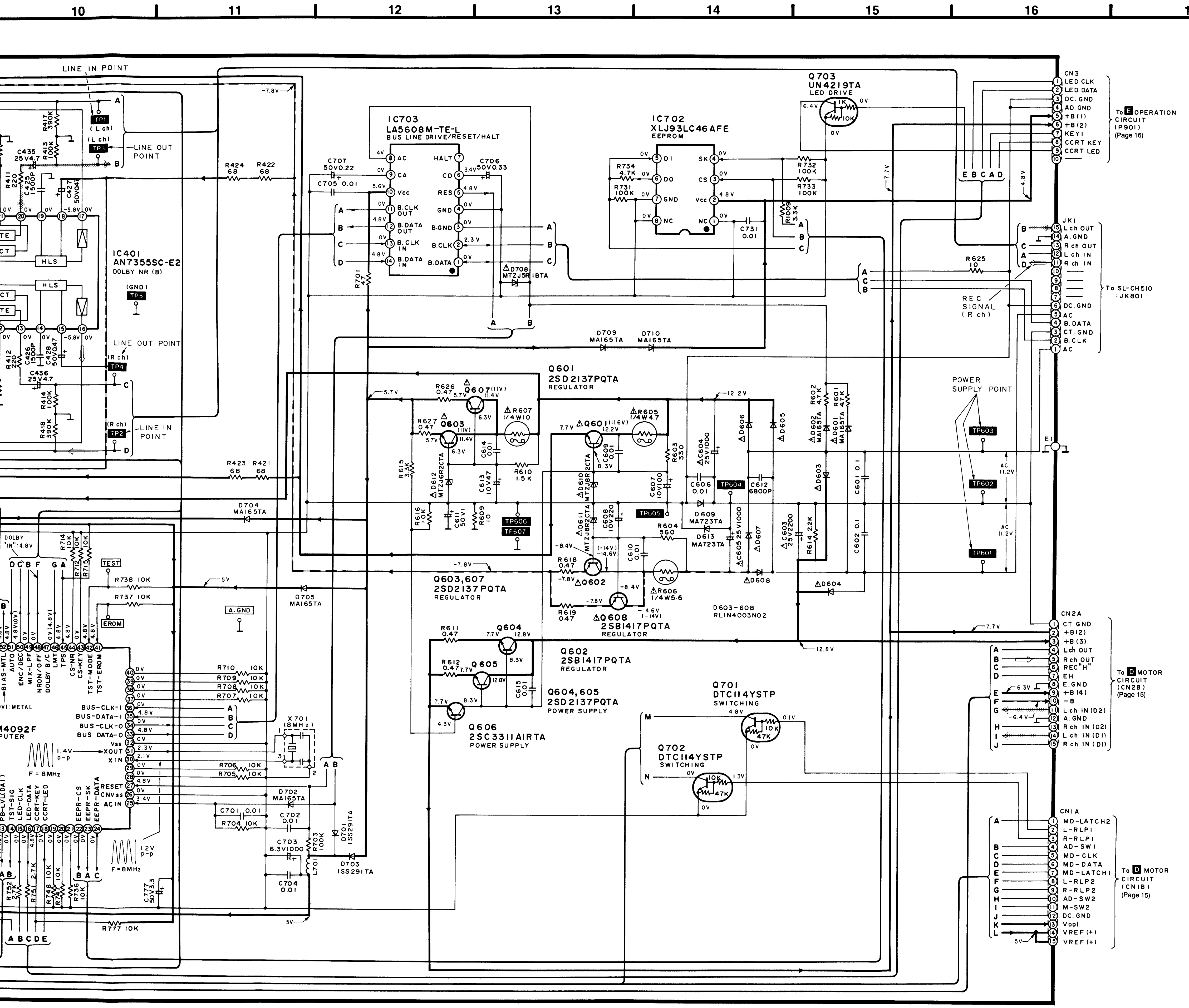

Q1,2
2SJ164PQRTA
HEAD SELECT
(PLAY:ON)
Q5,6
2SD1450STA
SWITCHING
(REC:ON)
IC2
AN6558SFE2
P.B EQ AMP
(DECK2)
IC1
AN6558SFE2
P.B EQ AMP
(DECK1)
IC801
BA6265FP-E1
MECHANISM CONT. (DECK1)
IC802
BA6265FP-E1
MECHANISM CONT. (DECK 2)
Q803
2SD1450STA
SOLENOID DRIVE
Q804
2SD1450STA
SOLENOID DRIVE
SOLENOID(PL) DRIVE
I/O EXPANDER
REEL MOTOR DRIVE
CAPSTAN MOTOR DRIVE
CAPSTAN MOTOR SPEED CONT.
RM1
(REEL MOTOR/ DECK1)
RM2
(REEL MOTOR/ DECK2)
Z801
Z802
S801 (OPEN DET.)
S802 (CLOSE DET.)
S803 (OPEN DET.)
S804 (CLOSE DET.)
(DECK1)
(DECK2)
REC SIGNAL (Rch)
CN2B
CT GND
+B(2)
+B(3)
L ch IN
R ch IN
REC "H"
EH
E.GND
+B(4)
–B
L ch OUT(D2)
A.GND
R ch OUT(D2)
L ch OUT(D1)
R ch OUT(D1)
To A MAIN CIRCUIT (CN2A) (Page 20)
CN1B
MD-LATCH2
L-RLP1
R-RLP1
AD-SW1
MD-CLK
MD-DATA
MD-LATCH1
L-RLP2
R-RLP2
AD-SW2
M-SW2
DC.GND
Vdd
VREF(+)
VREF(+)
To A MAIN CIRCUIT (CN1A) (Page 20)

E OPERATION CIRCUIT


IC901
XLU2040F-T2
LED DRIVE
DECK1 O5
DECK2 O6
REC O7
REV-G O8
REV-Y O9
FWD-Y O10
FWD-G O11
VDD
O4 DOLB
O3 DOLC
O2
O1
O0
CLK
DATA
Vss
D901~903
SLR-305VC
D908~911,913,914
SLR-305VC
D906 MA165TA
D904 MA165TA
Q902
Q901
D907 SPR-305MDTF
D905 SPR-305MDTF
Q901,902
UN4119TA
LED DRIVE
D913 (CCRT)
D911 (DECK1)
D914 (DECK2)
D903 (DOLBY OUT)
D902 (DOLBY IN)
D901 (REC)
(DECK2)
(DECK1)
(ONE TOUCH TAPE EDIT)
S912 (DECK1/2)
S911 (REVERSE MODE)
S910 (DOLBY NR)
S909 OPEN
S913 (CLOSE)
S908 OPEN
S914 (CLOSE)
S907 (HI)
S906 (NOR)
S905 (● REC PAUSE)
S904
S903
S902 (TPS)
S901 (TPS)
S900
S915 (CCRT)
R911 68K
R910 22K
R909 12K
R908 6.8K
R907 4.7K
R906 3.3K
R905 2.2K
R904 1.8K
R903 1.5K
R902 1.2K
R901 1K
R900 820
P901
LED CLK
LED DATA
DC GND
AD GND
+B(1)
+B(2)
KEY1
CCRT KEY
CCRT LED
To A MAIN CIRCUIT (CN3) (Page 20)

● Main circuit (Parts list on Page 33～36)


A MAIN CIRCUIT (REC/PLAY AMP/TPS DRIVE/BIAS OSC/DOLBY NR/MICRO COMPUTER/REGULATOR)
IC101 M62451FP PLAY/REC AMP
VCA
VCA CONT.
ALC
LOGIC
Q101 2SC3311AIRTA REC EQ (X2)
Q102 2SC3311AIRTA REC EQ (X2)
Q103 DTC144ESTP SWITCHING
PLAYBACK SIGNAL (L ch)
Q405,406 2SC3311AIRTA SWITCHING (MPX)
Q201 2SC3311AIRTA TPS DRIVE
IC201 XRA4558FT1 TPS DRIVE
IC401 AN7355SC-E2 DOLBY NR (B)
REC
PB
DELAY
BIAS
MUTE
RECT
HLS
MPX
NR
R/P
LINE IN POINT
LINE OUT POINT
TP1 (L ch)
TP3 (L ch)
TP5 (GND)
TP4 (R ch)
TP2 (R ch)
DOLBY "IN": 4.1V
IC701 M38062M4092F MICRO COMPUTER
TEST
EROM
F = 8MHz
1.4V P-P
1.2V P-P
Q333,334 2SC3311AIRTA BIAS OSC CONT.
Q335 2SD592STA BIAS OSC CONT.
Q318 2SA1309AIRTA BIAS OSC CONT.
Q313 2SB621AQSTA BIAS OSC CONT.
Q320 DTC144ESTP POWER SUPPLY CONT.
Q314 2SA1309AIRTA POWER SUPPLY
Q331,332 UN4219TA BIAS OSC CONT. (CrO2/METAL)
Q336 DTC144ESTP BIAS CONT.
Q316 2SC3311AIRTA BIAS OSC CONT.
Q315 2SD2137PQTA BIAS OSC CONT.
Q311,312 2SC3311AIRTA BIAS OSC
D302 MA165TA
D311 MA165TA
D312 MTZJ5R6CTA
D313 MA165TA
D351 MA165TA
D352 MA165TA
D201 MA165TA
D401 MA165TA
D402 MA165TA
D403 MA165TA
L301
L302
L101 30mH
L102 30mH
L401 10mH
L402 10mH
ΔR340 1/4W15
TP301
TP302 (GND)
BIAS CURRENT CHECK POINT
6.3V
7.7V
5.7V
12.2V
5V
-7.8V


10
11
12
13
14
15
16
17
LINE IN POINT
LINE OUT POINT
TP1
TP3
TP4
TP2
(L ch)
(R ch)
IC401
AN7355SC-E2
DOLBY NR (B)
(GND)
TP5
HLS
IC703
LA5608M-TE-L
BUS LINE DRIVE/RESET/HALT
IC702
XLJ93LC46AFE
EEPROM
Q703
UN4219TA
LED DRIVE
CN3
LED CLK
LED DATA
DC.GND
AD.GND
+B(1)
+B(2)
KEY1
CCRT KEY
CCRT LED
To E OPERATION CIRCUIT (P901) (Page 16)
JK1
Lch OUT
A.GND
R ch OUT
L ch IN
R ch IN
DC.GND
AC
B.DATA
CT.GND
B.CLK
To SL-CH510 :JK801
REC SIGNAL (R ch)
POWER SUPPLY POINT
TP603
TP602
TP601
E1
D709 MA165TA
D710 MA165TA
Q601
2SD2137PQTA
REGULATOR
Q607
Q603
Q602
Q608
Q604
Q605
Q606
Q603,607
2SD2137PQTA
REGULATOR
Q602
2SB1417PQTA
REGULATOR
Q604,605
2SD2137PQTA
POWER SUPPLY
Q606
2SC3311AIRTA
POWER SUPPLY
2SB1417PQTA
REGULATOR
D603-608
RLIN4003NO2
TP604
TP605
TP606
TP607
D704 MA165TA
D705 MA165TA
D702 MA165TA
D701 1SS291TA
D703 1SS291TA
X701 (8MHz)
A.GND
TEST
EROM
Q701
DTC114YSTP
SWITCHING
Q702
DTC114YSTP
SWITCHING
CN2A
CT GND
+B(2)
+B(3)
Lch OUT
Rch OUT
REC"H"
EH
E.GND
+B(4)
-B
Lch IN(D2)
A.GND
Rch IN(D2)
Lch IN(D1)
Rch IN(D1)
To D MOTOR CIRCUIT (CN2B) (Page 15)
CN1A
MD-LATCH2
L-RLP1
R-RLP1
AD-SW1
MD-CLK
MD-DATA
MD-LATCH1
L-RLP2
R-RLP2
AD-SW2
M-SW2
DC.GND
Vdd
VREF(+)
VREF(+)
To D MOTOR CIRCUIT (CN1B) (Page 15)
BUS-CLK-I
BUS-DATA-I
BUS-CLK-O
BUS DATA-O
XOUT
XIN
RESET
CNVss
ACIN
F = 8MHz
R777 10K

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

S801	DECK 1 cassette holder open detect switch
S802	DECK 1 cassette holder close detect switch
S803	DECK 2 cassette holder open detect switch
S804	DECK 2 cassette holder close detect switch
S900	Stop switch (■)
S901	Fast forward/tape program sensor switch (TPS ▶▶)
S902	Rewind/tape program sensor switch (◀◀ TPS)
S903	Forward side playback switch (▶)
S904	Reverse side playback switch (◀)
S905	Record pause switch (● REC PAUSE)
S906	One-touch tape edit switch (NORMAL)
S907	One-touch tape edit switch (HIGH)
S908	DECK 2 cassette holder open switch (⏏ OPEN)
S909	DECK 1 cassette holder open switch (⏏ OPEN)
S910	Dolby noise reduction switch (DOLBY NR)
S911	Reverse mode select switch (REVERSE MODE)
S912	DECK 1/DECK 2 select switch (DECK 1/2)
S913	DECK 1 cassette holder close switch (CLOSE)
S914	DECK 2 cassette holder close switch (CLOSE)
S915	CCRT switch (CCRT)
S971	DECK 1 mode detect switch
S972	DECK 1 half detect switch
S973	DECK 1 CrO2 tape detect switch
S971A	DECK 2 mode detect switch
S972A	DECK 2 half detect switch
S973A	DECK 2 CrO2 tape detect switch
S974A	DECK 2 reverse side record prevention tab detect switch
S975A	DECK 2 forward side record prevention tab detect switch
S976A	DECK 2 METAL tape detect switch

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
- Voltage values and waveforms are measured as indicated in the schematic diagram when test points between TP604 and TP605, and between TP606 and TP607 are shorted.

No mark : Playback ( ) : Recording

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

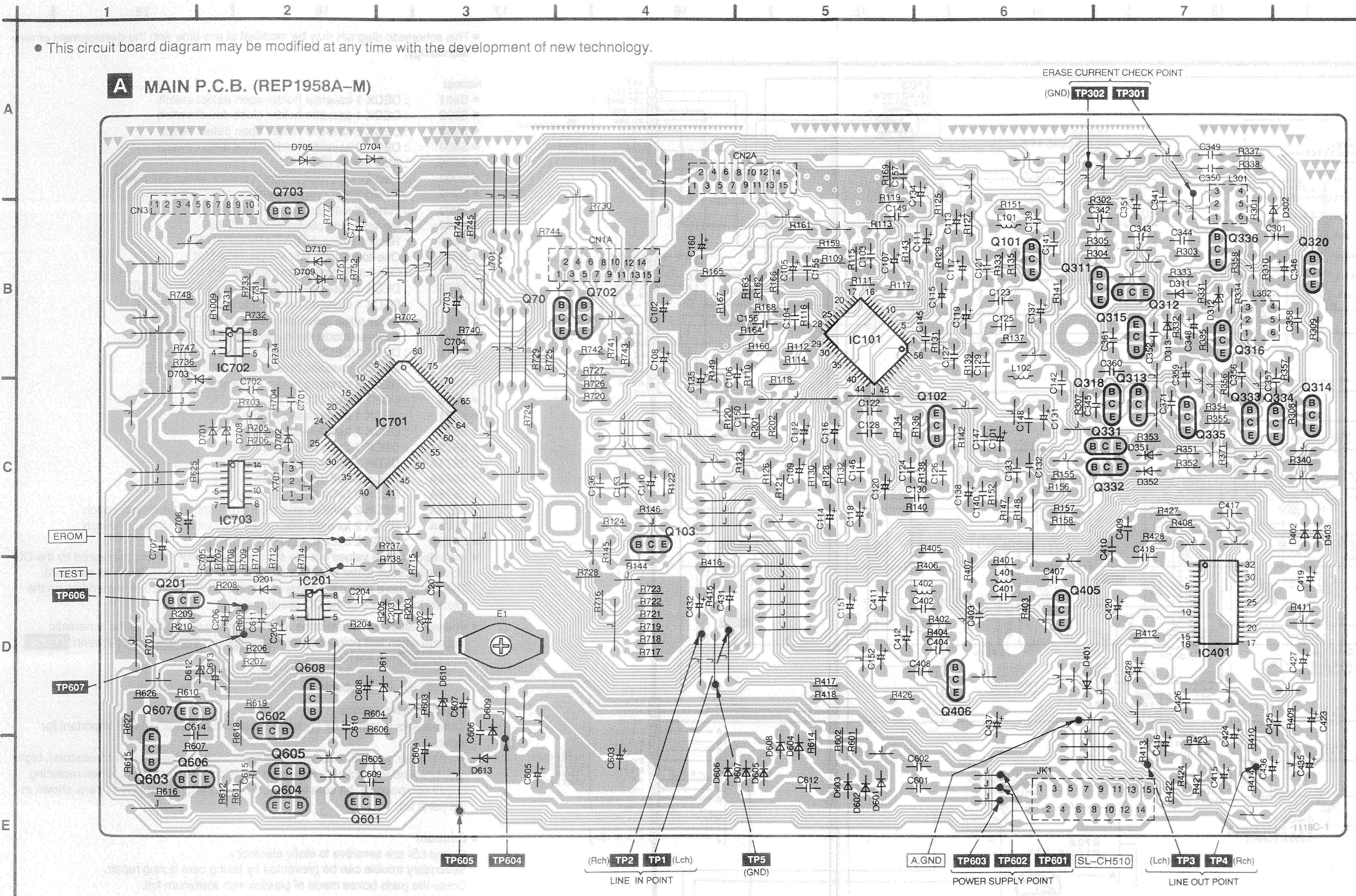
- **Voltage and signal line**

━━▶━━ : Positive voltage line	‒ ‒ ▶ ‒ ‒ :Negative voltage line
▨▨▨ : Playback signal Line	⇨ : Recording signal Line

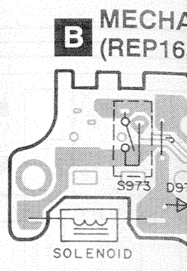
Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

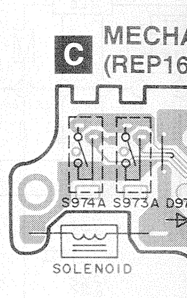
A MAIN P.C.B. (REP1958A–M)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
ERASE CURRENT CHECK POINT
(GND) TP302
TP301
CN3
CN2A
CN1A
IC701
IC702
IC703
IC101
IC201
IC401
Q703
Q702
Q70
Q101
Q102
Q103
Q201
Q311
Q312
Q313
Q314
Q315
Q316
Q318
Q320
Q331
Q332
Q333
Q334
Q335
Q336
Q405
Q406
Q601
Q602
Q603
Q604
Q605
Q606
Q607
Q608
E1
JK1
EROM
TEST
TP606
TP607
TP605
TP604
(Rch) TP2
TP1 (Lch)
LINE IN POINT
TP5
(GND)
A.GND
TP603
TP602
TP601
SL-CH510
POWER SUPPLY POINT
(Lch) TP3
TP4 (Rch)
LINE OUT POINT
1118C-1

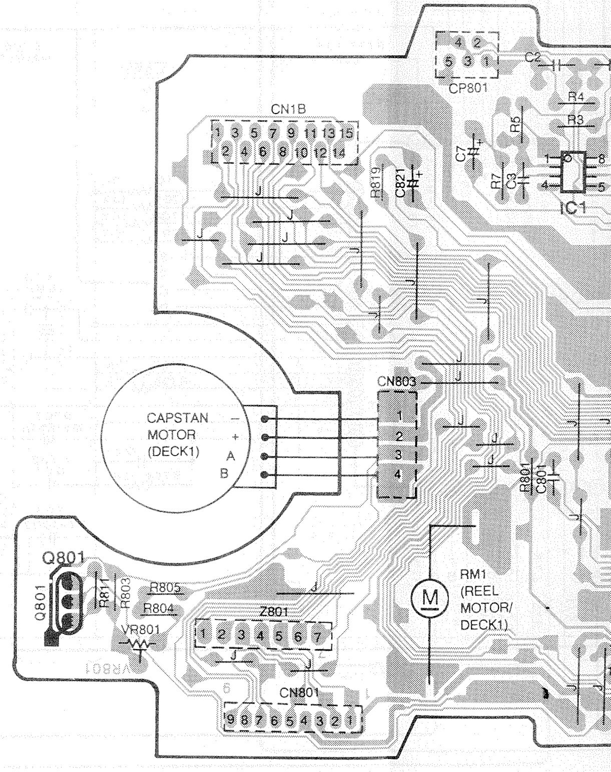
B MECHA (REP16


S973
SOLENOID

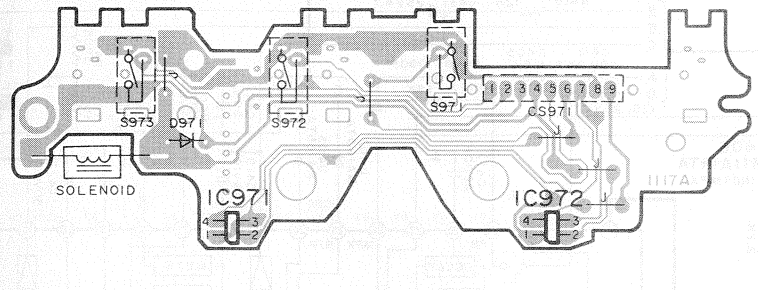
C MECHA (REP16


S974A
S973A
SOLENOID

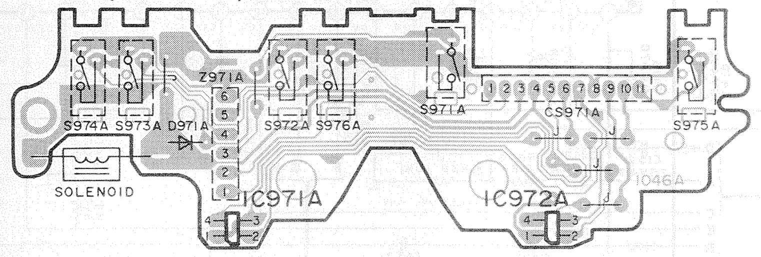
D MOTOR P.C.B. (REP1955A–T)


CP801
CN1B
IC1
CN803
CAPSTAN MOTOR (DECK1)
Q801
VR801
Z801
CN801
RM1 (REEL MOTOR/ DECK1)
M

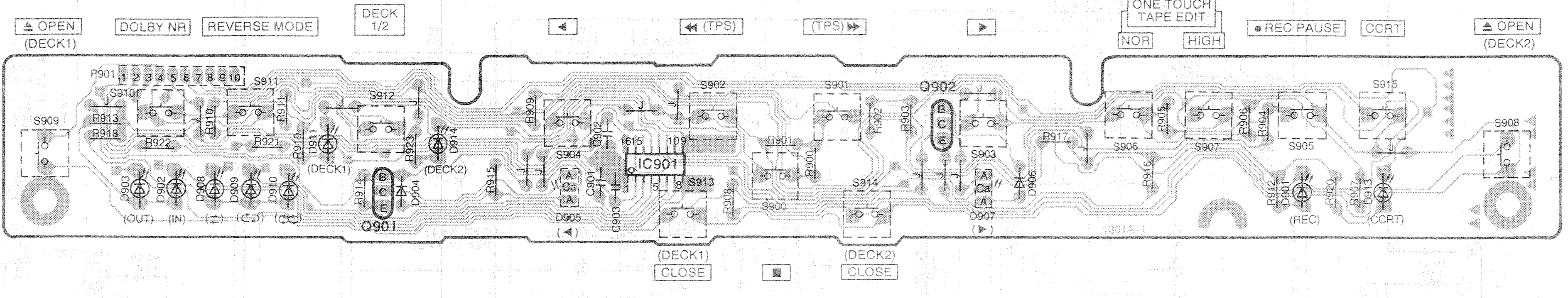
B MECHANISM P.C.B. (DECK1) (REP1655A)


S973
D971
S972
S971
CS971
1 2 3 4 5 6 7 8 9
SOLENOID
IC971
IC972
1117A

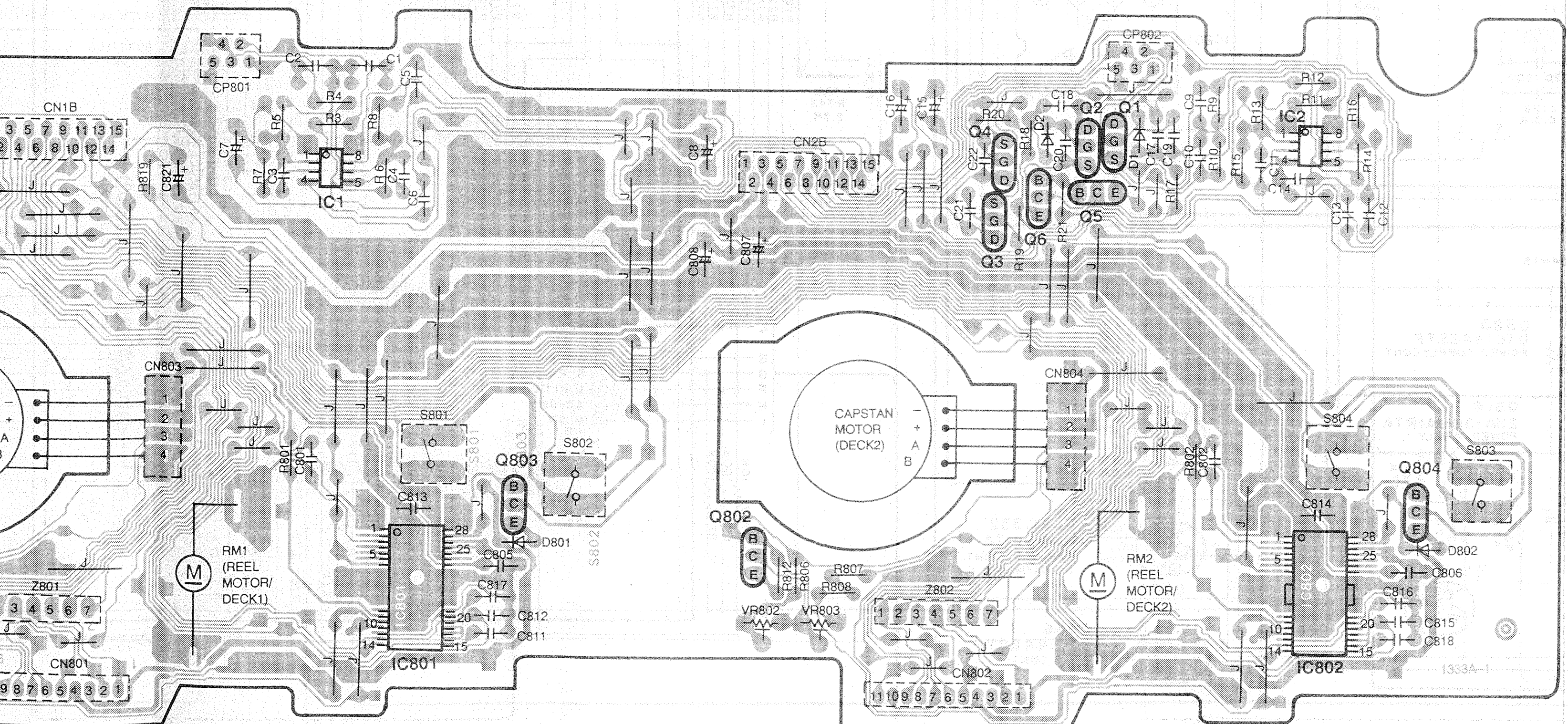
C MECHANISM P.C.B. (DECK2) (REP1656A)


Z971A
S974A
S973A
D971A
S972A
S976A
S971A
CS971A
S975A
1 2 3 4 5 6 7 8 9 10 11
SOLENOID
IC971A
IC972A
1046A

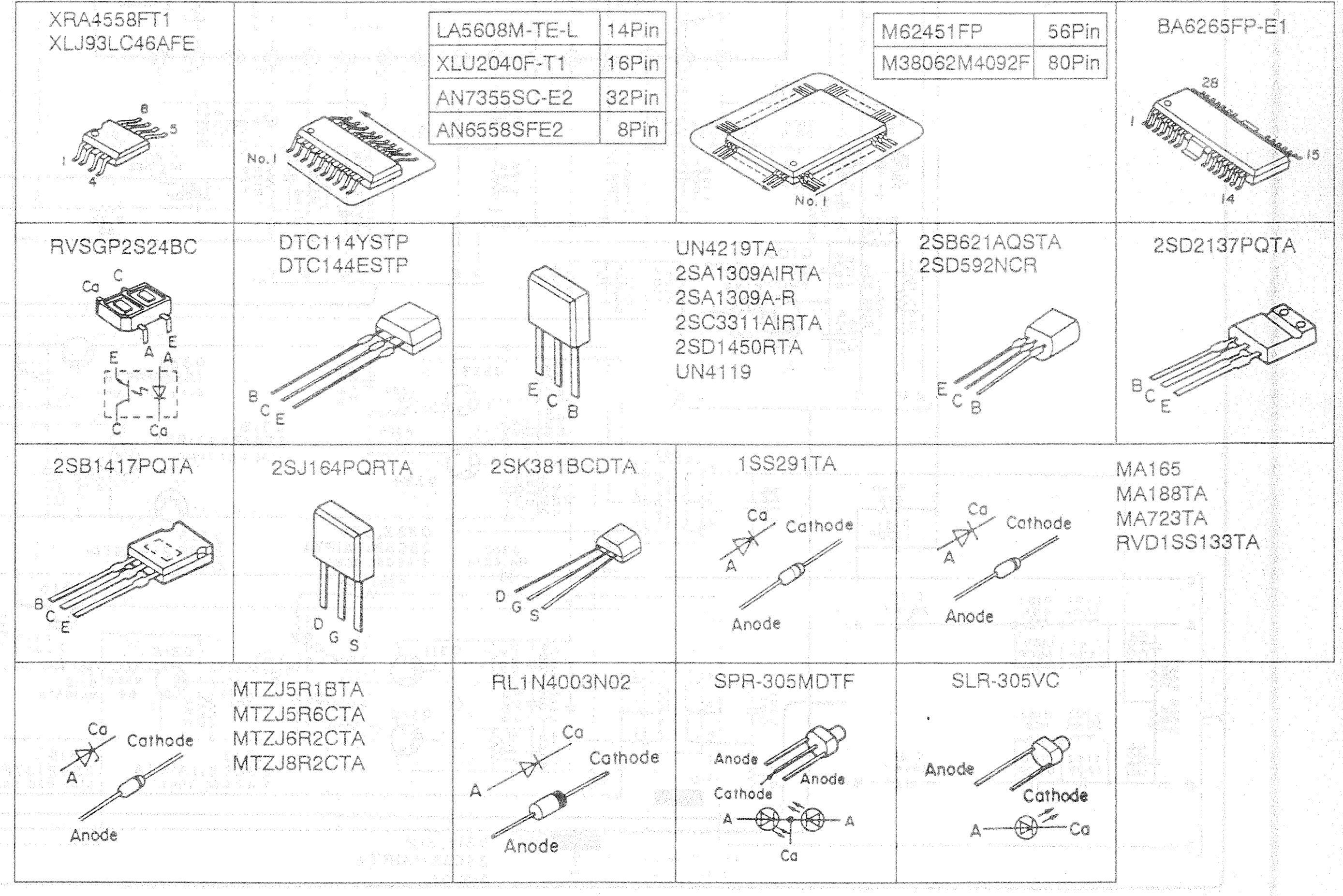
E OPERATION P.C.B. (REP1921A–S)


≜ OPEN (DECK1)
DOLBY NR
REVERSE MODE
DECK 1/2
◀
◀◀ (TPS)
(TPS) ▶▶
▶
ONE TOUCH TAPE EDIT
NOR
HIGH
● REC PAUSE
CCRT
≜ OPEN (DECK2)
P901
S909
S910
S911
S912
S902
S901
Q902
S915
S908
IC901
Q901
S913
S904
S900
S914
S903
S906
S907
S905
D905 (◀)
D907 (▶)
(OUT)
(IN)
(DECK1)
(DECK2)
(REC)
(CCRT)
(DECK1) CLOSE
■
(DECK2) CLOSE
1301A-I

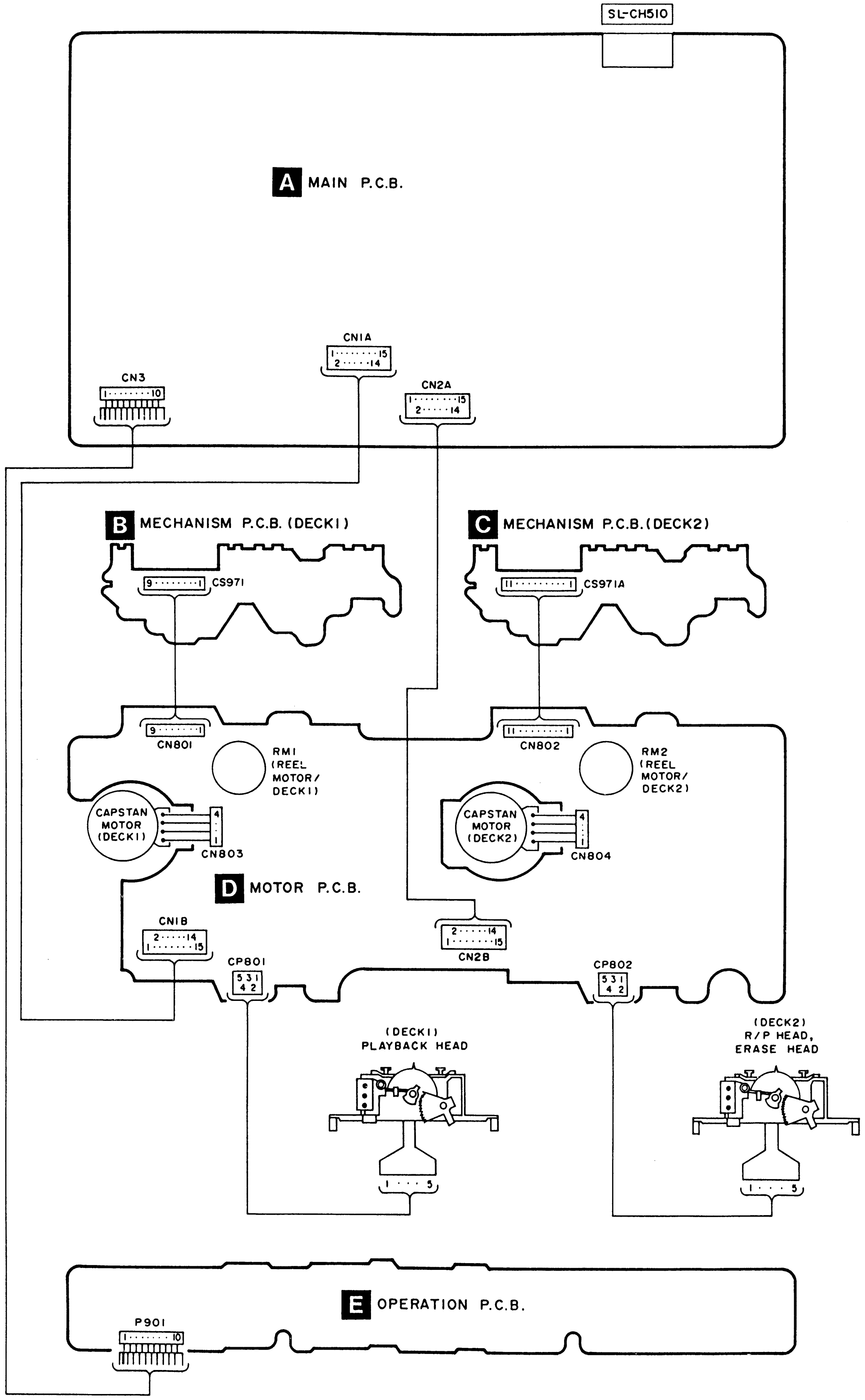
MOTOR P.C.B. (REP1955A–T)


CN1B
CP801
CP802
IC1
IC2
Q1
Q2
Q3
Q4
Q5
Q6
CN2B
CN803
CN804
S801
S802
S803
S804
Q802
Q803
Q804
CAPSTAN MOTOR (DECK2)
RM1 (REEL MOTOR/ DECK1)
RM2 (REEL MOTOR/ DECK2)
IC801
IC802
VR802
VR803
Z801
Z802
CN801
CN802
1333A-1

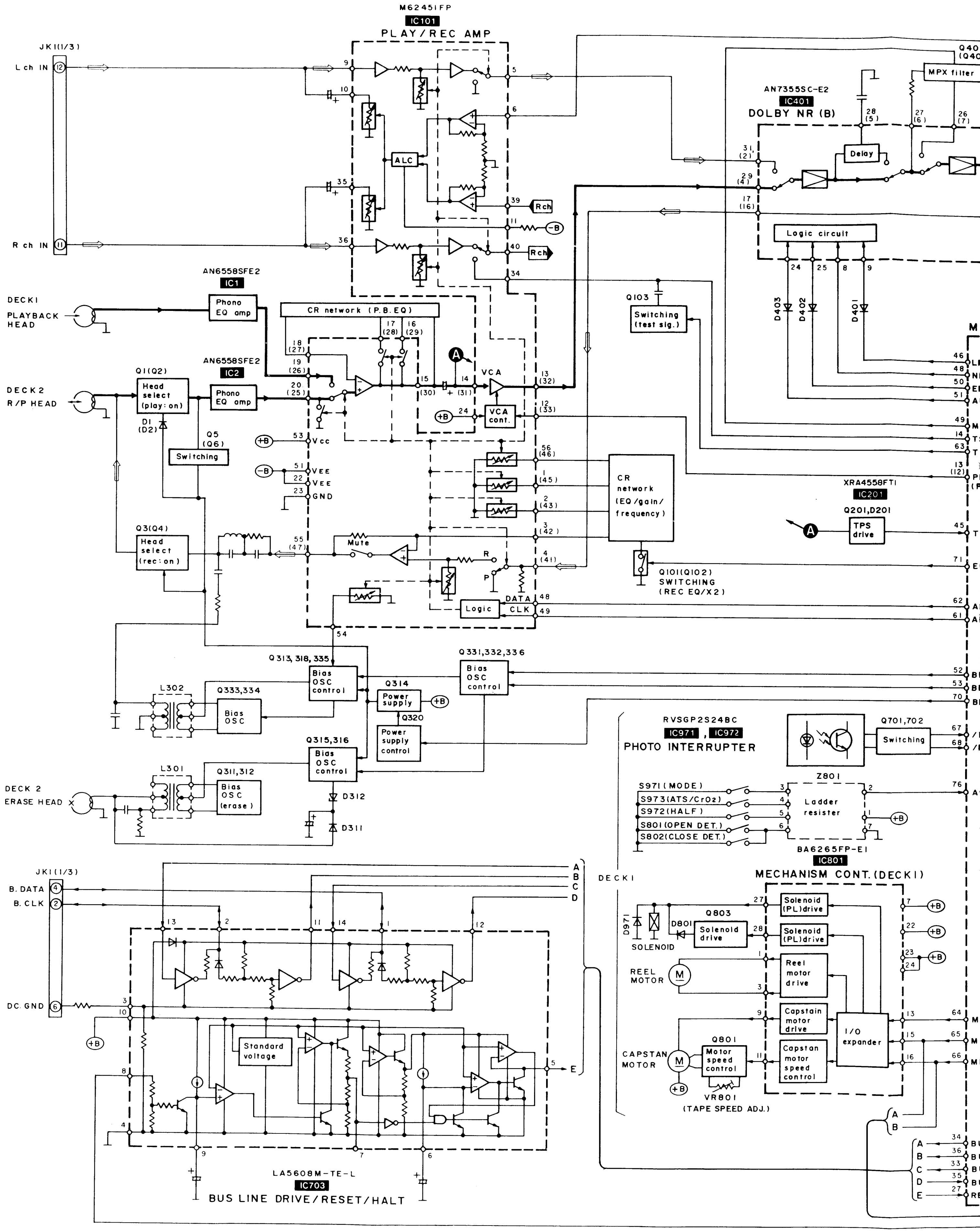
● Terminal Guide of IC's, Transistors and Diodes


XRA4558FT1
XLJ93LC46AFE
LA5608M-TE-L 14Pin
XLU2040F-T1 16Pin
AN7355SC-E2 32Pin
AN6558SFE2 8Pin
No. 1
M62451FP 56Pin
M38062M4092F 80Pin
BA6265FP-E1
RVSGP2S24BC
DTC114YSTP
DTC144ESTP
UN4219TA
2SA1309AIRTA
2SA1309A-R
2SC3311AIRTA
2SD1450RTA
UN4119
2SB621AQSTA
2SD592NCR
2SD2137PQTA
2SB1417PQTA
2SJ164PQRTA
2SK381BCDTA
1SS291TA
MA165
MA188TA
MA723TA
RVD1SS133TA
MTZJ5R1BTA
MTZJ5R6CTA
MTZJ6R2CTA
MTZJ8R2CTA
RL1N4003N02
SPR-305MDTF
SLR-305VC
Cathode
Anode
Ca
A
B
C
E
D
G
S

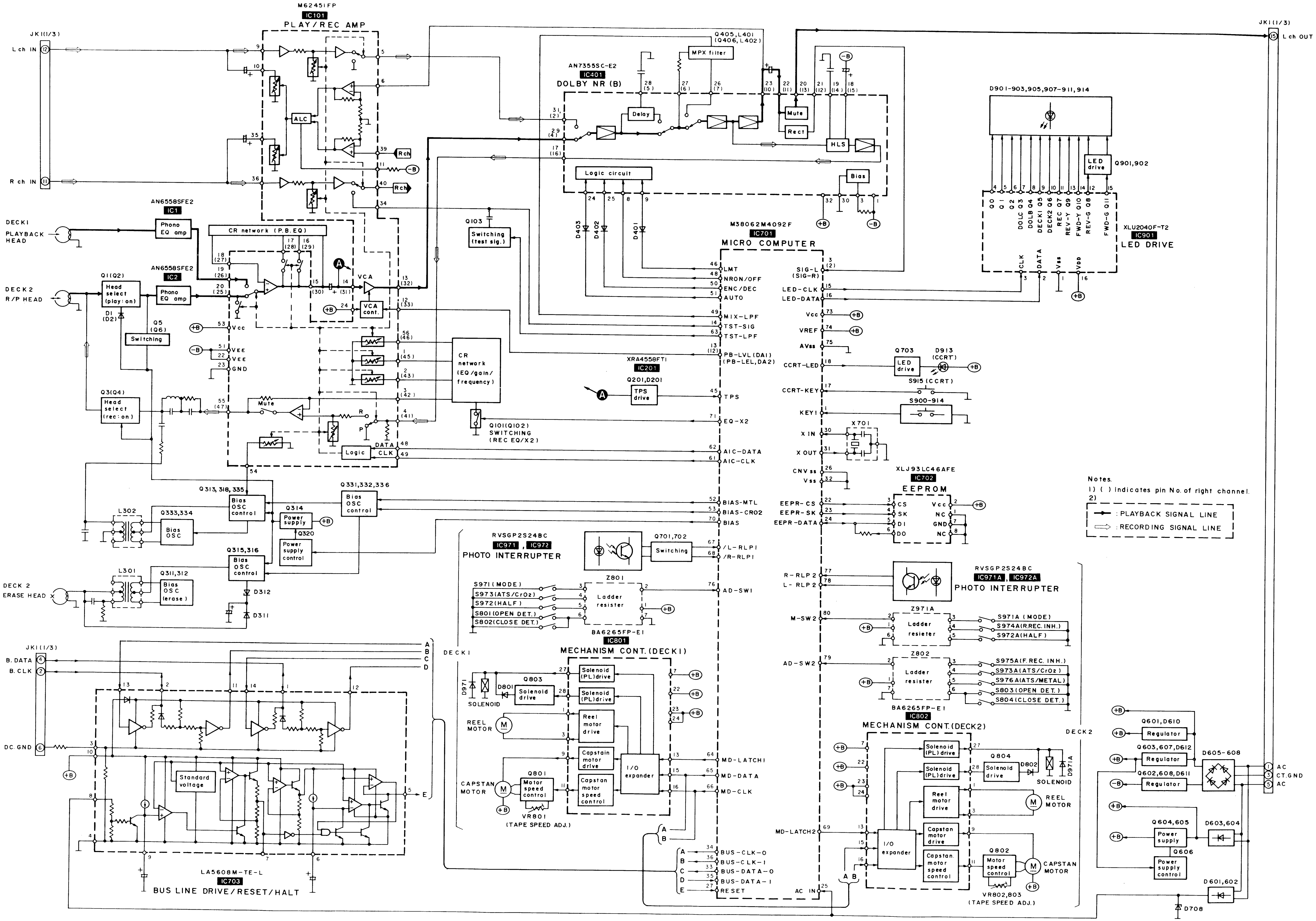
■ Wiring Connection Diagram


SL-CH510
A MAIN P.C.B.
CN3
1·······10
CN1A
1·······15
2·····14
CN2A
1·······15
2·····14
B MECHANISM P.C.B. (DECK1)
9·······1 CS971
C MECHANISM P.C.B. (DECK2)
11·······1 CS971A
9·······1
CN801
RM1 (REEL MOTOR/ DECK1)
11·······1
CN802
RM2 (REEL MOTOR/ DECK2)
CAPSTAN MOTOR (DECK1)
CN803
CAPSTAN MOTOR (DECK2)
CN804
D MOTOR P.C.B.
CN1B
2·····14
1·······15
CP801
5 3 1
4 2
2·····14
1·······15
CN2B
CP802
5 3 1
4 2
(DECK1) PLAYBACK HEAD
(DECK2) R/P HEAD, ERASE HEAD
1 · · · 5
1 · · · 5
E OPERATION P.C.B.
P901
1·······10

■ Block Diagram


M62451FP
IC101
PLAY/REC AMP
JK1(1/3)
L ch IN
R ch IN
ALC
R ch
B
R ch
AN7355SC-E2
IC401
DOLBY NR (B)
Delay
Logic circuit
MPX filter
D403
D402
D401
Q103
Switching (test sig.)
AN6558SFE2
IC1
Phono EQ amp
DECK1 PLAYBACK HEAD
CR network (P.B.EQ)
AN6558SFE2
IC2
Phono EQ amp
DECK2 R/P HEAD
Q1(Q2)
Head select (play: on)
D1 (D2)
Q5 (Q6)
Switching
VCA
VCA cont.
+B
-B
VCC
VEE
GND
CR network (EQ/gain/ frequency)
XRA4558FT1
IC201
Q201,D201
TPS drive
Q3(Q4)
Head select (rec: on)
Mute
Logic
DATA
CLK
Q101(Q102) SWITCHING (REC EQ/X2)
Q313, 318, 335
Bias osc control
Q331,332,336
Bias osc control
L302
Q333,334
Bias osc
Q314
Power supply
Q320
Power supply control
Q315,316
Bias osc control
L301
Q311,312
Bias osc (erase)
D312
D311
DECK 2 ERASE HEAD
RVSGP2S248C
IC971 , IC972
PHOTO INTERRUPTER
Q701,702
Switching
Z801
S971(MODE)
S973(ATS/CrO2)
S972(HALF)
S801(OPEN DET.)
S802(CLOSE DET.)
Ladder resister
BA6265FP-E1
IC801
MECHANISM CONT. (DECK1)
DECK1
D971
SOLENOID
D801
Q803
Solenoid drive
Solenoid (PL)drive
Solenoid (PL)drive
REEL MOTOR
Reel motor drive
Capstain motor drive
I/O expander
CAPSTAN MOTOR
Q801
Motor speed control
Capstan motor speed control
VR801 (TAPE SPEED ADJ.)
JK1(1/3)
B. DATA
B. CLK
DC GND
A
B
C
D
E
Standard voltage
LA5608M-TE-L
IC703
BUS LINE DRIVE/RESET/HALT

■ Block Diagram


M62451FP
IC101
PLAY/REC AMP
JK1(1/3)
Lch IN
Rch IN
ALC
Rch
AN6558SFE2
IC1
DECK1 PLAYBACK HEAD
Phono EQ amp
CR network (P.B.EQ)
VCA
VCA cont.
AN6558SFE2
IC2
DECK2 R/P HEAD
Q1(Q2)
Head select (play: on)
D1 (D2)
Q5 (Q6)
Switching
Vcc
VEE
GND
CR network (EQ/gain/frequency)
Q3(Q4)
Head select (rec: on)
Mute
Logic
DATA
CLK
Q103
Switching (test sig.)
Q101(Q102) SWITCHING (REC EQ/X2)
Q313, 318, 335
Bias osc control
Q331,332,336
Bias osc control
L302
Q333,334
Bias osc
Q314
Power supply
Q320
Power supply control
Q315,316
Bias osc control
L301
Q311,312
Bias osc (erase)
D312
D311
DECK 2 ERASE HEAD
Q405,L401 (Q406,L402)
MPX filter
AN7355SC-E2
IC401
DOLBY NR (B)
Delay
Mute
Rect
HLS
Bias
Logic circuit
D403
D402
D401
M38062M4092F
IC701
MICRO COMPUTER
LMT
NRON/OFF
ENC/DEC
AUTO
MIX-LPF
TST-SIG
TST-LPF
PB-LVL(DA1) (PB-LEL,DA2)
XRA4558FT1
IC201
Q201,D201
TPS drive
TPS
EQ-X2
AIC-DATA
AIC-CLK
BIAS-MTL
BIAS-CRO2
BIAS
/L-RLP1
/R-RLP1
AD-SW1
MD-LATCH1
MD-DATA
MD-CLK
BUS-CLK-O
BUS-CLK-I
BUS-DATA-O
BUS-DATA-I
RESET
AC IN
SIG-L (SIG-R)
LED-CLK
LED-DATA
Vcc
VREF
AVss
CCRT-LED
CCRT-KEY
KEY1
X IN
X OUT
CNVss
Vss
EEPR-CS
EEPR-SK
EEPR-DATA
R-RLP2
L-RLP2
M-SW2
AD-SW2
MD-LATCH2
JK1(1/3)
L ch OUT
D901-903,905,907-911,914
LED drive
Q901,902
Q0 Q1 Q2 DOLC Q3 DOLB Q4 DECK1 Q5 DECK2 Q6 REC Q7 REV-Y Q9 FWD-Y Q10 REV-G Q8 FWD-G Q11
CLK DATA Vss VDD
XLU2040F-T2
IC901
LED DRIVE
Q703
LED drive
D913 (CCRT)
S915 (CCRT)
S900-914
X701
XLJ93LC46AFE
IC702
EEPROM
CS SK DI DO Vcc NC GND NC
Notes.
1) ( ) indicates pin No. of right channel.
2)
: PLAYBACK SIGNAL LINE
: RECORDING SIGNAL LINE
RVSGP2S248C
IC971, IC972
PHOTO INTERRUPTER
Q701,702
Switching
Z801
S971(MODE)
S973(ATS/CrO2)
S972(HALF)
S801(OPEN DET.)
S802(CLOSE DET.)
Ladder resister
BA6265FP-E1
IC801
MECHANISM CONT.(DECK1)
DECK1
D971
D801
Q803
Solenoid drive
SOLENOID
Solenoid (PL) drive
Solenoid (PL) drive
REEL MOTOR
Reel motor drive
Capstan motor drive
Capstan motor speed control
I/O expander
CAPSTAN MOTOR
Q801
Motor speed control
VR801 (TAPE SPEED ADJ.)
RVSGP2S248C
IC971A, IC972A
PHOTO INTERRUPTER
Z971A
Ladder resieter
S971A (MODE)
S974A(R.REC. INH.)
S972A(HALF)
Z802
Ladder resister
S975A(F.REC. INH.)
S973A(ATS/CrO2)
S976A(ATS/METAL)
S803(OPEN DET.)
S804(CLOSE DET.)
BA6265FP-E1
IC802
MECHANISM CONT.(DECK2)
DECK2
Q804
Solenoid drive
D802
D971A
SOLENOID
REEL MOTOR
Q802
Motor speed control
CAPSTAN MOTOR
VR802,803 (TAPE SPEED ADJ.)
Q601,D610
Regulator
Q603,607,D612
Regulator
Q602,608,D611
Regulator
D605-608
AC
CT.GND
AC
Q604,605
Power supply
Q606
Power supply control
D603,604
D601,602
D708
JK1(1/3)
B. DATA
B. CLK
DC. GND
Standard voltage
LA5608M-TE-L
IC703
BUS LINE DRIVE/RESET/HALT

■ Self-Check Function

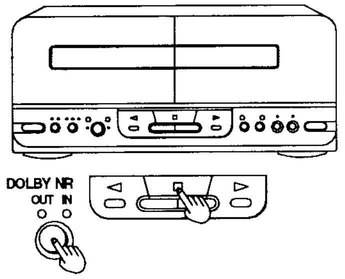
This unit incorporates a cassette mechanism self-check function using the DOLBY NR/REVERSE MODE LED indicators. Use this function during maintenance to check for faults in the items below.

• Cassette tapes to be prepared

Metal tape:	Recorded music tape with erase-prevention tab intact on one side removed from the other side (use middle portion of tape).
Normal tape: CrO2 tape:	Recorded music tape with both erase-prevention tabs intact (use middle portion of tape).

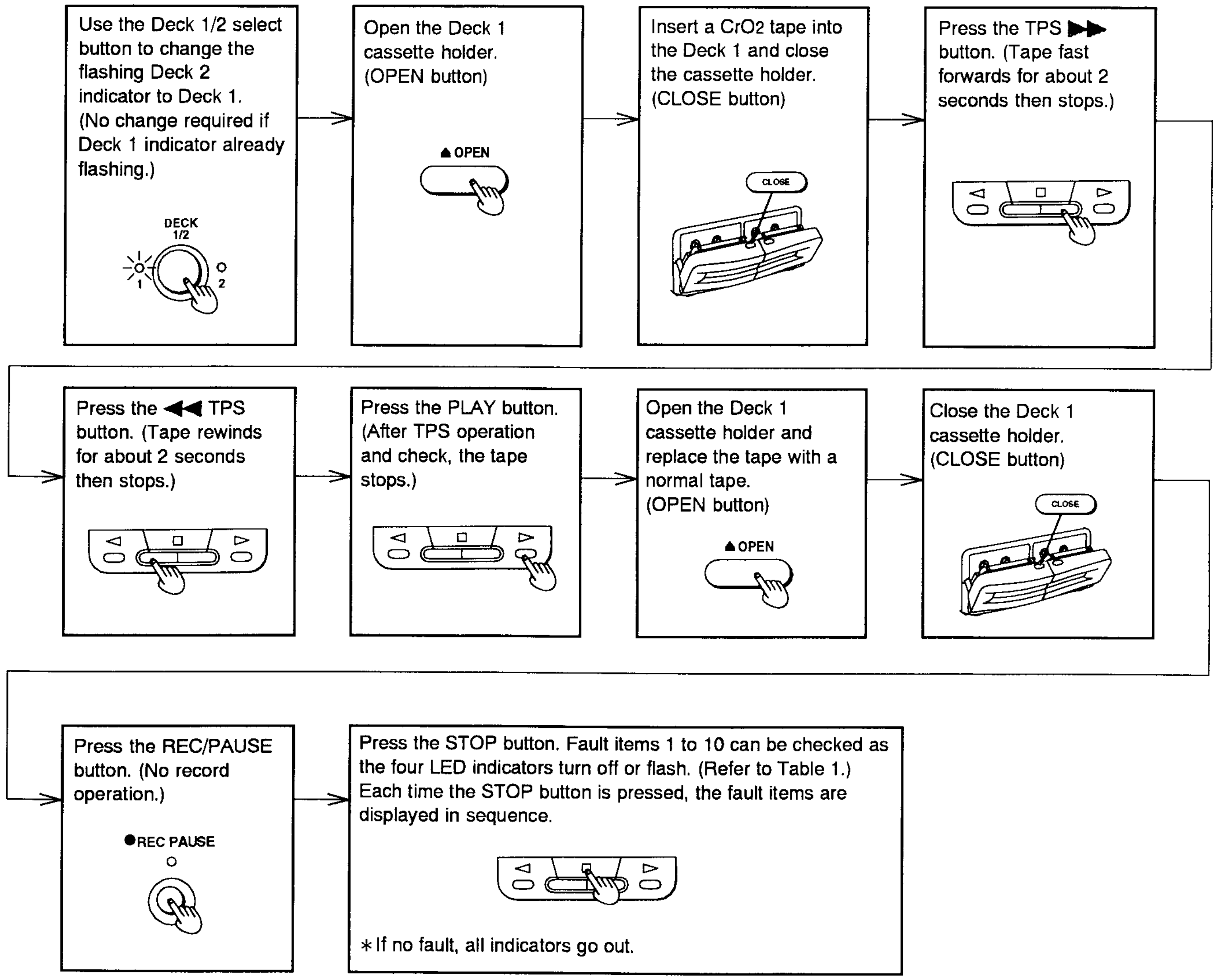
• Selecting Self-Check Mode

1. Turn on the power to the unit . (If RS-CH510 unit is removed from system, turn on power according to procedure on page 9.)
2. Check that no tape is inserted in the cassette deck.
   Press and hold the DOLBY NR button for about 2 seconds, then press the STOP button for about 2 seconds. (Self-Check mode cannot be selected with a tape loaded in the cassette deck.)



3. DOLBY NR and REVERSE MODE LED indicators turn off, and the LED indicator for either Deck 1 or Deck 2 flashes, indicating the self-check mode has been activated.

• Deck 1 Mechanism Check



Use the Deck 1/2 select button to change the flashing Deck 2 indicator to Deck 1. (No change required if Deck 1 indicator already flashing.)

Open the Deck 1 cassette holder. (OPEN button)

Insert a CrO2 tape into the Deck 1 and close the cassette holder. (CLOSE button)

Press the TPS ▶▶ button. (Tape fast forwards for about 2 seconds then stops.)

Press the ◀◀ TPS button. (Tape rewinds for about 2 seconds then stops.)

Press the PLAY button. (After TPS operation and check, the tape stops.)

Open the Deck 1 cassette holder and replace the tape with a normal tape. (OPEN button)

Close the Deck 1 cassette holder. (CLOSE button)

Press the REC/PAUSE button. (No record operation.)

Press the STOP button. Fault items 1 to 10 can be checked as the four LED indicators turn off or flash. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.

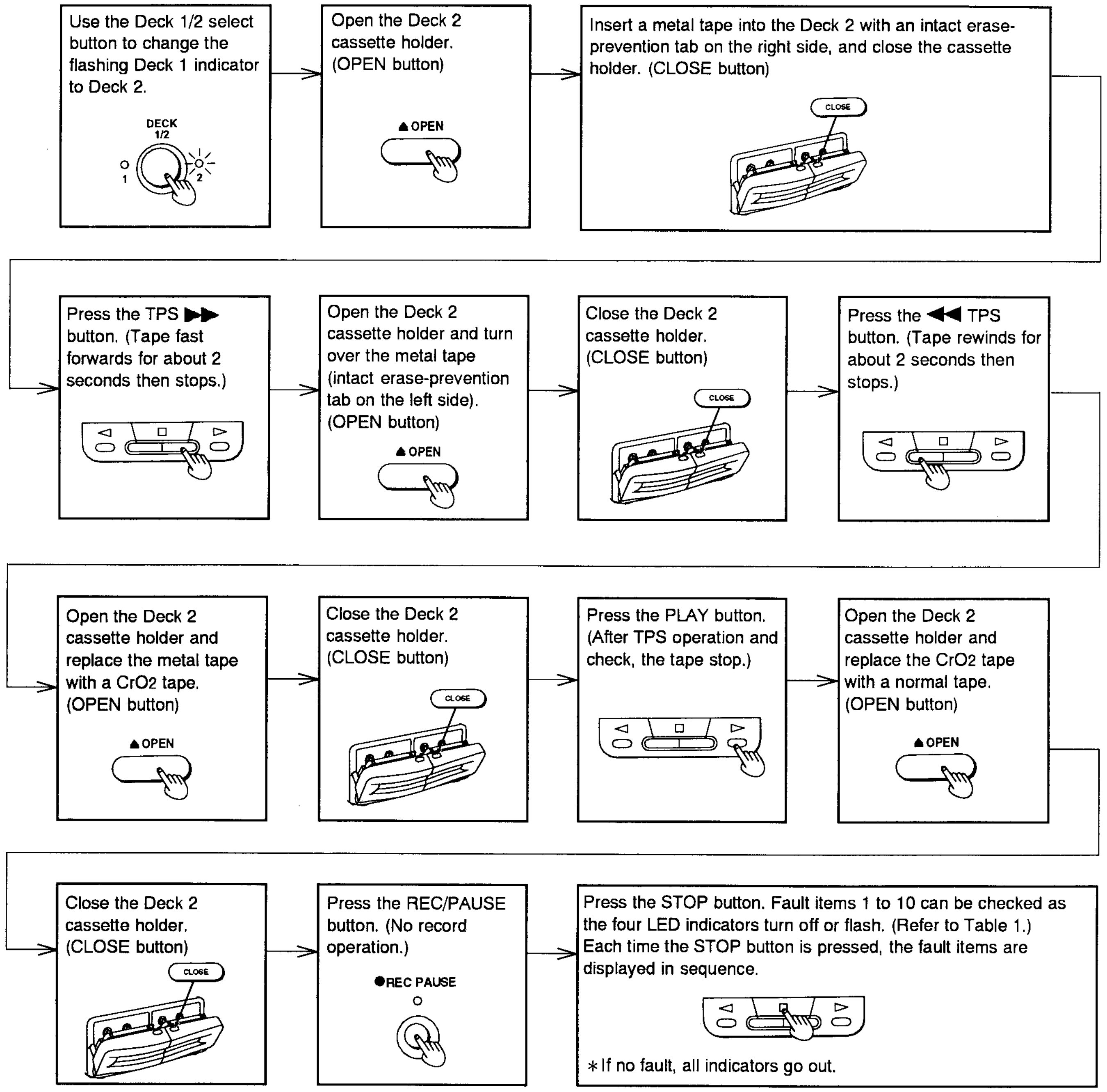
∗If no fault, all indicators go out.

No.	LED indicator status (off/flashing)				Fault location
	DOLBY NR	REVERSE MODE			
	IN	⇄	↻	↻↺	
1.	—	—	—	●	MODE detect switch
2.	—	—	●	—	REC prevention switch
3.	—	—	●	●	Half detect switch
4.	—	●	—	—	Deck OPEN switch
5.	—	●	—	●	Deck CLOSE switch
6.	—	●	●	—	CrO2 tape detect switch
7.	—	●	●	●	Metal tape detect switch
8.	●	—	—	—	Reel pulse detect system (Hall IC, etc.)
9.	●	—	—	●	TPS operation
10.	●	—	●	—	Reel motor

Table 1: Self-Check Mode Diagnostic Items

Notes:
" ● " : Flashing
" — " : off
∗If no fault, all indicators go out.

• Deck 2 Mechanism Check



Use the Deck 1/2 select button to change the flashing Deck 1 indicator to Deck 2.

Open the Deck 2 cassette holder. (OPEN button)

Insert a metal tape into the Deck 2 with an intact erase-prevention tab on the right side, and close the cassette holder. (CLOSE button)

Press the TPS ▶▶ button. (Tape fast forwards for about 2 seconds then stops.)

Open the Deck 2 cassette holder and turn over the metal tape (intact erase-prevention tab on the left side). (OPEN button)

Close the Deck 2 cassette holder. (CLOSE button)

Press the ◀◀ TPS button. (Tape rewinds for about 2 seconds then stops.)

Open the Deck 2 cassette holder and replace the metal tape with a CrO2 tape. (OPEN button)

Close the Deck 2 cassette holder. (CLOSE button)

Press the PLAY button. (After TPS operation and check, the tape stop.)

Open the Deck 2 cassette holder and replace the CrO2 tape with a normal tape. (OPEN button)

Close the Deck 2 cassette holder. (CLOSE button)

Press the REC/PAUSE button. (No record operation.)

Press the STOP button. Fault items 1 to 10 can be checked as the four LED indicators turn off or flash. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.

∗If no fault, all indicators go out.

• Exiting S

1. Press the

2. Remove t
3. Turn off t

■ Func

•IC702 (XL

Pin No.	Termi Nam
1	NC
2	Vc
3	CS
4	SK
5	DI
6	DC
7	GN
8	NC

No.	LED indicator status (off/flashing)				Fault location
	DOLBY NR	REVERSE MODE			
	IN	⇄	⟲	⟲⟲	
1.	—	—	—	●	MODE detect switch
2.	—	—	●	—	REC prevention switch
3.	—	—	●	●	Half detect switch
4.	—	●	—	—	Deck OPEN switch
5.	—	●	—	●	Deck CLOSE switch
6.	—	●	●	—	CrO_2 tape detect switch
7.	—	●	●	●	Metal tape detect switch
8.	●	—	—	—	Reel pulse detect system (Hall IC, etc.)
9.	●	—	—	●	TPS operation
10.	●	—	●	—	Reel motor

Table 1: Self-Check Mode Diagnostic Items

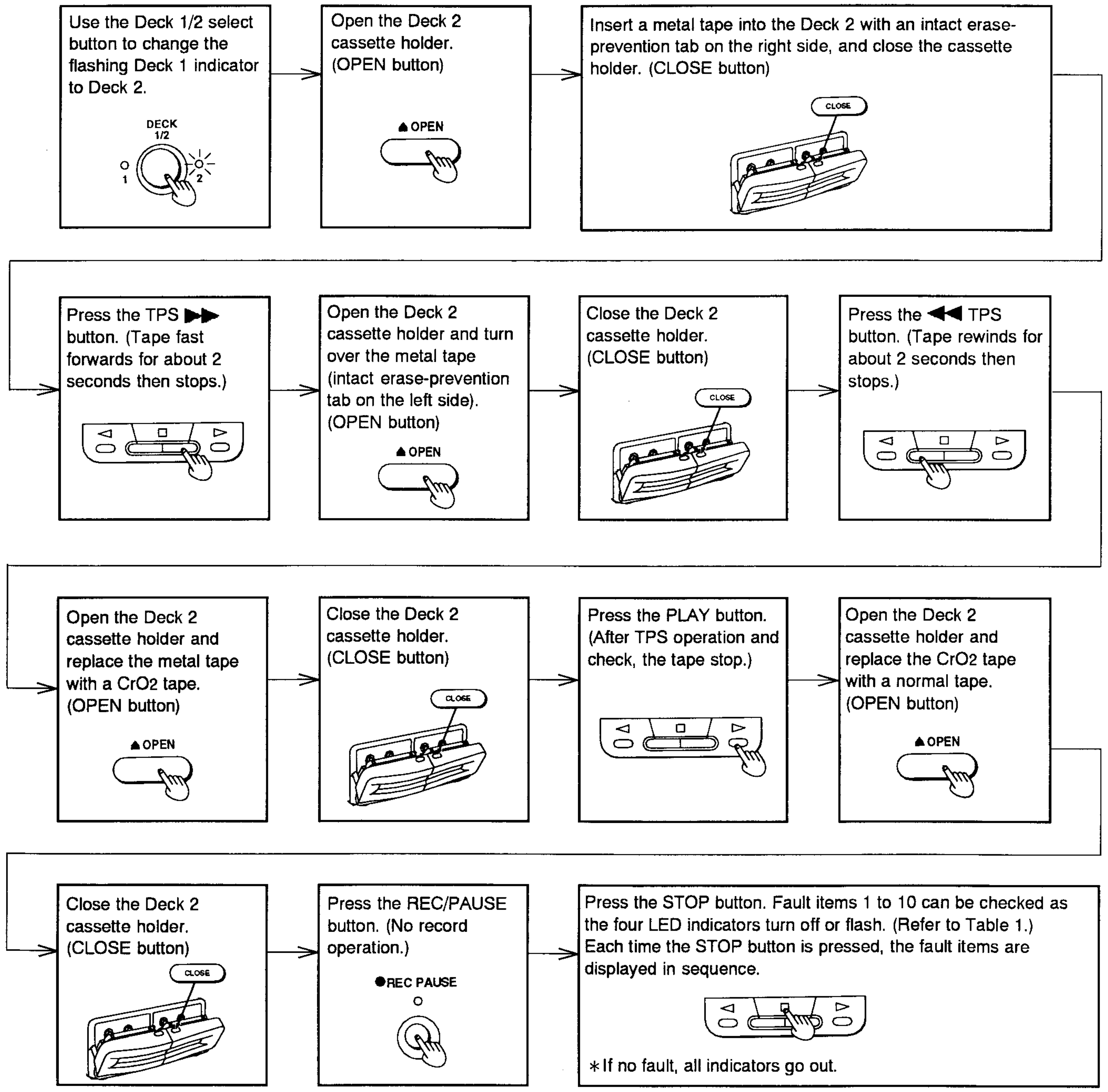
Notes:

"●": Flashing

"—": off

∗If no fault, all indicators go out.

- **Deck 2 Mechanism Check**



Use the Deck 1/2 select button to change the flashing Deck 1 indicator to Deck 2.

Open the Deck 2 cassette holder. (OPEN button)

Insert a metal tape into the Deck 2 with an intact erase-prevention tab on the right side, and close the cassette holder. (CLOSE button)

Press the TPS ▶▶ button. (Tape fast forwards for about 2 seconds then stops.)

Open the Deck 2 cassette holder and turn over the metal tape (intact erase-prevention tab on the left side). (OPEN button)

Close the Deck 2 cassette holder. (CLOSE button)

Press the ◀◀ TPS button. (Tape rewinds for about 2 seconds then stops.)

Open the Deck 2 cassette holder and replace the metal tape with a CrO_2 tape. (OPEN button)

Close the Deck 2 cassette holder. (CLOSE button)

Press the PLAY button. (After TPS operation and check, the tape stop.)

Open the Deck 2 cassette holder and replace the CrO_2 tape with a normal tape. (OPEN button)

Close the Deck 2 cassette holder. (CLOSE button)

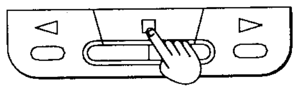
Press the REC/PAUSE button. (No record operation.)

Press the STOP button. Fault items 1 to 10 can be checked as the four LED indicators turn off or flash. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.

∗If no fault, all indicators go out.

- **Exiting Self-Check Mode**

1. Press the STOP button for more than 5 seconds. (Diagnostic contents stored in memory for both Deck 1 and 2 are erased.)



2. Remove the cassette tape from the cassette holder.
3. Turn off the unit.

■ Function of IC Terminals

•IC702 (XLJ93LC46AFE)

Pin No.	Terminal Name	I/O	Function
1	NC	—	Connected to GND
2	Vcc	I	Power input
3	CS	I	Chip select signal input
4	SK	I	Serial clock input
5	DI	I	Serial data input
6	DO	O	Serial data output
7	GND	—	GND
8	NC	—	Connected to GND

•IC801 and IC802 (BA6265FP-E1)

Pin No.	Terminal Name	I/O	Function
1	RM−	O	Reel motor control (−)
2	GND	—	Reel motor GND
3	RM+	O	Reel motor control (+)
4 ≀ 6	NC	—	Connected to GND
7	7.5 V	I	Power input (7.5 V)
8	GND	—	Capstan motor GND
9	CPM	O	Capstan motor control
10	NC	—	Connected to GND
11	CPM-SW	O	Capstan motor speed control
12	NC	—	Connected to GND
13	LACH	I	I/O expandor lach signal output
14	S.O.	O	I/O expandor serial output
15	DATA	I	I/O expandor data input
16	CLK	I	I/O expandor clock input
17, 18	NC	—	Connected to CLK
19	NC	—	Connected to LACH
20, 21	GND	—	GND
22	5 V	I	Power input (5 V)
23, 24	15 V	I	Power input (15 V)
25	NC	—	Connected to GND
26	GND	—	GND
27	PL15 V	O	Plunger drive signal output (15 V)
28	PL7.5 V	O	Plunger drive signal output (7.5 V)

● IC701 (M38062M4092F)

Pin No.	Terminal Name	I/O	Function
1	KEY1	I	Operation key input
2	SIG-R	I	Level detection input for audio signal (R-ch)
3	SIG-L	I	Level detection input for audio signal (L-ch)
4 ≀ 11	—	—	Unused, connected to GND
12	PB-LVL (DA2)	O	Control signal output for playback level (R-ch)
13	PB-LVL (DA1)	O	Control signal output for playback level (L-ch)
14	TST-SIG	O	Audio test signal output (400 Hz/10 kHz)
15	LED-CLK	O	Serial clock signal output for LED drive control to IC901
16	LED-DATA	O	Serial data signal output for LED drive control to IC901
17	CCRT-KEY	I	Key input for CCRT
18	CCRT-LED	O	ON/OFF control signal output for CCRT display to LED
19 ≀ 21	—	—	Unused, connected to GND
22	EEPR-CS	O	Chip select signal output for EEPROM
23	EEPR-SK	O	Serial clock signal output for EEPROM
24	EEPR-DATA	I/O	Serial data signal input/output for EEPROM
25	ACIN	I	Signal input for power OFF mode detection
26	CNVSS	—	Connected to Vss
27	/RESET	I	Reset signal input from IC703
28 29	—	—	Unused, connected to GND
30	XIN	I	Connected to a oscillator X701 (8 MHz)
31	XOUT	O	
32	VSS	—	Connected to GND
33	BUS DATA-0	O	Bus data signal output
34	BUS CLK-0	O	Bus clock signal output
35	BUS DATA-1	I	Bus data signal input
36	BUS CLK-1	I	Bus clock signal input
37 ≀ 40	—	—	Unused, connected to GND
41	TST-EPROM	I	Signal input for EEPROM initialization
42	TST-MODE	I	Switching signal input for Test ON/OFF mode
43	CS-KEY	I	Connected to GND
44	CS-NR	I	Model selection input (This unit ; "L")
45	TPS	I	Detection signal input for tape music search presence signal in TPS operation
46	LMT	O	Muting signal output for line out
47	DOLBY B/C	O	Dolby B/C switching signal output
48	NR ON/OFF	O	Dolby ON/OFF switching signal output
49	MIX-LPF	O	Filter ON/OFF switching signal output in audio signal level detection
50	ENC/DEC	O	Encoder/decoder switching signal
51	AUTO	O	Gain control signal output for audio signal level detection circuit
52	BIAS-MTL	O	Control signal output for recording bias in use of a metal tape
53	BIAS-CRO2	O	Control signal output for recording bias in use of a Chrome tape
54 ≀ 59	—	—	Unused, connected to GND
60	TEST "L"	O	Connected to GND
61	AIC-CLK	O	Clock control signal output to IC for audio recording/playback
62	AIC-DATA	O	Data control signal output to IC for audio recording/playback
63	TST-LPF	O	Filter ON/OFF switching signal output for CCRT recording test signal (400 Hz: "H")
64	MD LATCH1	O	Latch signal output to IC801 for mechanism drive on deck 1
65	MD-DATA	O	Serial data signal output to mechanism drive ICs (IC801, IC802)
66	MD-CLK	O	Serial clock signal output to mechanism ICs (IC801, 802)
67	/L-RLP1	I	Pulse signal input for rotation detection to left side reel of deck 1
68	/R-RLP1	I	Pulse signal input for rotation detection to right side reel of deck 1
69	MD-LATCH2	O	Latch signal output to IC802 for mechanism drive on deck 2
70	BIAS	O	ON/OFF switching signal output for recording bias
71	EQ-X2	O	Switching signal output for recording equalizer
72	—	—	Unused, connected to GND
73	Vcc	—	Connected to power source (+5V)
74	VREF	—	Connected to reference voltage for A/D input
75	AVSS	—	Connected to GND
76	VREF	—	Standard voltage for A/D convertor (Connected to VCC)
77	R-RLP2	I	Pulse signal input for rotation detection to right side reel of deck 2
78	L-RLP2	I	Pulse signal input for rotation detection to left side reel of deck 2
79	AD-SW2	I	Signal input for mechanism switches for deck 2
80	M-SW2	I	Signal input for mechanism switches for deck 2

■ Replacement Parts List

Notes: •Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
•The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
•The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1, 2	AN6558SFE2	IC, P. B EQ AMP.	
IC101	M62451FP	IC, REC/PLAYBACK AMP.	
IC201	XRA4558FT1	IC, TPS DRIVE	
IC401	AN7355SC-E2	IC, DOLBY NR	
IC701	M38062M4092F	IC, MICRO COMPUTER	
IC702	XLJ93LC46AFE	IC, EEPROM	
IC703	LA5608M-TE-L	IC, BUS LINE/HALT/RESET	
IC801, 802	BA6265FP-E1	IC, MECHANISM CONTROL	
IC901	XLU2040F-T1	IC, LED DRIVE	
IC971	RVSGP2S24BC	PHOTO INTERRUPTER(DECK1)	
IC971A	RVSGP2S24BC	PHOTO INTERRUPTER(DECK2)	
IC972	RVSGP2S24BC	PHOTO INTERRUPTER(DECK1)	
IC972A	RVSGP2S24BC	PHOTO INTERRUPTER(DECK2)	
		TRANSISTOR(S)	
Q1, 2	2SJ164PQRTA	TRANSISTOR	
Q3, 4	2SK381BCDTA	TRANSISTOR	
Q5, 6	2SD1450RTA	TRANSISTOR	
Q101, 102	2SC3311AIRTA	TRANSISTOR	
Q103	DTC144ESTP	TRANSISTOR	
Q201	2SC3311AIRTA	TRANSISTOR	
Q311, 312	2SC3311AIRTA	TRANSISTOR	
Q313	2SB621AQSTA	TRANSISTOR	
Q314	2SA1309AIRTA	TRANSISTOR	
Q315	2SD2137PQTA	TRANSISTOR	
Q316	2SC3311AIRTA	TRANSISTOR	
Q318	2SA1309AIRTA	TRANSISTOR	
Q320	DTC144ESTP	TRANSISTOR	
Q331, 332	UN4219TA	TRANSISTOR	
Q333, 334	2SC3311AIRTA	TRANSISTOR	
Q335	2SD592NCR	TRANSISTOR	
Q336	DTC144ESTP	TRANSISTOR	
Q405, 406	2SC3311AIRTA	TRANSISTOR	
Q601	2SD2137PQTA	TRANSISTOR	⚠
Q602	2SB1417PQTA	TRANSISTOR	⚠
Q603	2SD2137PQTA	TRANSISTOR	⚠
Q604, 605	2SD2137PQTA	TRANSISTOR	
Q606	2SC3311AIRTA	TRANSISTOR	
Q607	2SD2137PQTA	TRANSISTOR	⚠
Q608	2SB1417PQTA	TRANSISTOR	⚠
Q701, 702	DTC114YSTP	TRANSISTOR	
Q703	UN4219TA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q801, 802	2SA1309A-R	TRANSISTOR	
Q803, 804	2SD1450RTA	TRANSISTOR	
Q901, 902	UN4119	TRANSISTOR	
		DIODE(S)	
D1, 2	MA188TA	DIODE	
D201	MA165	DIODE	
D302	MA165	DIODE	
D311	MA188TA	DIODE	
D312	MTZJ5R6CTA	DIODE	
D313	MA165	DIODE	
D351, 352	MA165	DIODE	
D401-403	MA165	DIODE	
D601, 602	MA165	DIODE	⚠
D603-608	RL1N4003N02	DIODE	⚠
D609	MA723TA	DIODE	
D610, 611	MTZJ8R2CTA	DIODE	⚠
D612	MTZJ6R2CTA	DIODE	⚠
D613	MA723TA	DIODE	
D701	1SS291TA	DIODE	
D702	MA165	DIODE	
D703	1SS291TA	DIODE	
D704, 705	MA165	DIODE	
D708	MTZJ5R1BTA	DIODE	⚠
D709, 710	MA165	DIODE	
D801, 802	MA188TA	DIODE	
D901-903	SLR-305VC	LED	
D904	MA165	DIODE	
D905	SPR-305MDTF	LED	
D906	MA165	DIODE	
D907	SPR-305MDTF	LED	
D908-911	SLR-305VC	LED	
D913, 914	SLR-305VC	LED	
D971	RVD1SS133TA	DIODE (DECK1)	
D971A	RVD1SS133TA	DIODE (DECK2)	
		VARIABLE RESISTOR(S)	
VR801	EVNDCAA03B53	TAPE SPEED ADJ (DECK1) NORMAL	
VR802	EVNDCAA03B53	TAPE SPEED ADJ (DECK2) HIGH	
VR803	EVNDCAA03B53	TAPE SPEED ADJ (DECK2) NORMAL	
		COMPONENT COMBINATION(S)	
Z801, 802	EXBF7L355SYV	COMPONENT COMBINATION	

Ref. No.	Part No.	Part Name & Description	Remarks
Z971A	EXBF6L306SYV	COMPONENT COMBINATION	
		COIL(S)	
L101, 102	SLQX303-1KT	COIL	
L301, 302	SL09B4-K	COIL	
L401, 402	RLQB103JT-Y	COIL	
L701	RLQA100JT-Y	COIL	
		OSCILLATOR(S)	
X701	EF0EC8004T4	OSCILLATOR(8MHz)	
		SWITCH(ES)	
S801	RSH1A024-U	SW, HOLDER OPEN DET. (DECK1)	
S802	RSH1A024-U	SW, HOLDER CLOSE DET. (DECK1)	
S803	RSH1A024-U	SW, HOLDER OPEN DET. (DECK2)	
S804	RSH1A024-U	SW, HOLDER CLOSE DET. (DECK2)	
S900	EVQ21405R	SW, STOP	
S901	EVQ21405R	SW, FF (TPS)	
S902	EVQ21405R	SW, REW (TPS)	
S903	EVQ21405R	SW, FWD PLAY	
S904	EVQ21405R	SW, REV PLAY	
S905	EVQ21405R	SW, REC PAUSE	
S906	EVQ21405R	SW, TAPE EDIT(NORMAL)	
S907	EVQ21405R	SW, TAPE EDIT(HIGH)	
S908	EVQ21405R	SW, HOLDER OPEN(DECK2)	
S909	EVQ21405R	SW, HOLDER OPEN(DECK1)	
S910	EVQ21405R	SW, DOLBY NR	
S911	EVQ21405R	SW, REVERSE MODE	
S912	EVQ21405R	SW, DECK1/2 SELECT	
S913	EVQ21405R	SW, HOLDER CLOSE(DECK1)	
S914	EVQ21405R	SW, HOLDER CLOSE(DECK2)	
S915	EVQ21405R	SW, CCRT	
S971	RSH1A018-U	SW, MODE (DECK1)	
S971A	RSH1A018-U	SW, MODE (DECK2)	
S972	RSH1A019-U	SW, HALF (DECK1)	
S972A	RSH1A019-U	SW, HALF (DECK2)	
S973	RSH1A019-U	SW, ATS/Cr02 (DECK1)	
S973A	RSH1A019-U	SW, ATS/Cr02 (DECK2)	
S974A	RSH1A019-U	SW, R. REC. INH(DECK2)	
S975A	RSH1A019-U	SW, F. REC. INH(DECK2)	
S976A	RSH1A019-U	SW, ATS/METAL (DECK2)	
		CONNECTOR(S)	
CN1A	RJS1A6815	SOCKET(15P)	
CN2A	RJS1A6815	SOCKET(15P)	
CN1B	RJS1A6715-Q	SOCKET(15P)	
CN2B	RJS1A6715-Q	SOCKET(15P)	
CN3	RJS10T4ZA	SOCKET(10P)	
CN801	RJT071H09A	CONNECTOR(9P)	
CN802	RJT071H11A	CONNECTOR(11P)	
CN803, 804	RJR0113	CONNECTOR(MOTOR)	
CS971	RJU071H09M	SOCKET(9P)	
CS971A	RJU071H11M	SOCKET(11P)	
CP801, 802	RJS2A0205-2S	SOCKET(5P)	
		GND PLATE	
E1	SNE1004-2	GND PLATE	
		JACK	
JK1	RJT065K15	SYSTEM CONNECTOR	

Notes : • Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
• Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R3, 4	ERDS2TJ101	1/4W 100
R5, 6	ERDS2TJ391	1/4W 390
R7, 8	ERDS2TJ103	1/4W 10K
R9	ERDS2TJ224T	1/4W 220K
R10	ERDS2TJ224T	1/4W 220K
R11, 12	ERDS2TJ101	1/4W 100
R13, 14	ERDS2TJ391	1/4W 390
R15, 16	ERDS2TJ103	1/4W 10K
R17-20	ERDS2TJ225	1/4W 2.2M
R21	ERDS2TJ472	1/4W 4.7K
R109, 110	ERDS2TJ151	1/4W 150
R111, 112	ERDS2TJ472	1/4W 4.7K
R113, 114	ERDS2TJ272T	1/4W 2.7K
R115, 116	ERDS2TJ224T	1/4W 220K
R117, 118	ERDS2TJ682T	1/4W 6.8K
R119, 120	ERDS2TJ152	1/4W 1.5K
R121-124	ERDS2TJ104	1/4W 100K
R125, 126	ERDS2TJ822	1/4W 8.2K
R127, 128	ERDS2TJ153	1/4W 15K
R129, 130	ERDS2TJ473	1/4W 47K
R131, 132	ERDS2TJ223	1/4W 22K
R133, 134	ERDS2TJ151	1/4W 150
R135-138	ERDS2TJ271	1/4W 270
R139, 140	ERDS2TJ123	1/4W 12K
R141, 142	ERDS2TJ222	1/4W 2.2K
R143	ERDS2TJ475T	1/4W 4.7M
R144	ERDS2TJ331	1/4W 330
R145	ERDS2TJ104	1/4W 100K
R146	ERDS2TJ472	1/4W 4.7K
R147, 148	ERDS2TJ222	1/4W 2.2K
R149	ERDS2TJ471	1/4W 470
R151, 152	ERDS2TJ103	1/4W 10K
R155, 156	ERDS2TJ150T	1/4W 15
R157, 158	ERDS2TJ180T	1/4W 18
R159, 160	ERDS2TJ100	1/4W 10
R161, 162	ERDS2TJ182	1/4W 1.8K
R163, 164	ERDS2TJ151	1/4W 150
R165, 166	ERDS2TJ182	1/4W 1.8K
R167, 168	ERDS2TJ151	1/4W 150
R169	ERDS2TJ473	1/4W 47K
R201, 202	ERDS2TJ223	1/4W 22K
R203	ERDS2TJ331	1/4W 330
R204	ERDS2TJ472	1/4W 4.7K
R205	ERDS2TJ823T	1/4W 82K
R206	ERDS2TJ682T	1/4W 6.8K
R207	ERDS2TJ393	1/4W 39K
R208	ERDS2TJ102	1/4W 1K
R209, 210	ERDS2TJ153	1/4W 15K
R301	ERDS2TJ1R0	1/4W 1.0
R302, 303	ERDS2TJ103	1/4W 10K
R304, 305	ERDS2TJ100	1/4W 10
R307	ERDS2TJ153	1/4W 15K
R308	ERDS2TJ473	1/4W 47K
R309	ERDS2TJ272T	1/4W 2.7K
R310	ERDS2TJ472	1/4W 4.7K
R331	ERDS2TJ561	1/4W 560
R332	ERDS2TJ680T	1/4W 68
R333	ERDS2TJ103	1/4W 10K
R334	ERDS2TJ563	1/4W 56K
R335	ERDS2TJ562	1/4W 5.6K
R337, 338	ERDS2TJ393	1/4W 39K
R340	ERD2FCVG150T	1/4W 15 ⚠
R351	ERDS2TJ471	1/4W 470
R352	ERDS2TJ821	1/4W 820
R353	ERDS2TJ333	1/4W 33K
R354, 355	ERDS2TJ270T	1/4W 27
R356, 357	ERDS2TJ562	1/4W 5.6K
R358	ERDS2TJ272T	1/4W 2.7K
R371	ERDS2TJ102	1/4W 1K
R401, 402	ERDS2TJ272T	1/4W 2.7K
R403, 404	ERDS2TJ562	1/4W 5.6K
R405, 406	ERDS2TJ682T	1/4W 6.8K
R407	ERDS2TJ222	1/4W 2.2K
R408	ERDS2TJ223	1/4W 22K
R409, 410	ERDS2TJ104	1/4W 100K
R411, 412	ERDS2TJ221	1/4W 220
R413, 414	ERDS2TJ104	1/4W 100K
R415, 416	ERDS2TJ123	1/4W 12K
R417, 418	ERDS2TJ394	1/4W 390K
R421-424	ERDS2TJ680T	1/4W 68
R426	ERDS2TJ103	1/4W 10K
R427, 428	ERDS2TJ153	1/4W 15K
R601, 602	ERDS2TJ472	1/4W 4.7K
R603	ERDS2TJ331	1/4W 330
R604	ERDS2TJ561	1/4W 560
R605	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R606	ERD2FCVJ5R6T	1/4W 5.6 ⚠
R607	ERD2FCVG100T	1/4W 10 ⚠
R609	ERDS2TJ100	1/4W 10
R610	ERDS2TJ152	1/4W 1.5K
R611, 612	ERDS2TJR47T	1/4W 0.47
R614	ERDS2TJ222	1/4W 2.2K
R615	ERDS2TJ332	1/4W 3.3K
R616	ERDS2TJ103	1/4W 10K
R618, 619	ERDS2TJR47T	1/4W 0.47
R625	ERDS2TJ100	1/4W 10
R626, 627	ERDS2TJR47T	1/4W 0.47
R701	ERDS2TJ470	1/4W 47
R702	ERDS2TJ103	1/4W 10K
R703	ERDS2TJ104	1/4W 100K
R704-710	ERDS2TJ103	1/4W 10K
R712	ERDS2TJ103	1/4W 10K
R714-730	ERDS2TJ103	1/4W 10K
R731-733	ERDS2TJ104	1/4W 100K
R734	ERDS2TJ472	1/4W 4.7K
R736-738	ERDS2TJ103	1/4W 10K
R740	ERDS2TJ103	1/4W 10K
R741-744	ERDS2TJ272T	1/4W 2.7K
R745, 746	ERDS2TJ104	1/4W 100K
R747, 748	ERDS2TJ103	1/4W 10K
R751, 752	ERDS2TJ272T	1/4W 2.7K
R777	ERDS2TJ103	1/4W 10K
R801, 802	ERDS2TJ2R2T	1/4W 2.2
R803	ERDS2TJ153	1/4W 15K
R804	ERDS2TJ103	1/4W 10K
R805	ERDS2TJ392T	1/4W 3.9K
R806	ERDS2TJ123	1/4W 12K
R807	ERDS2TJ103	1/4W 10K
R808	ERDS2TJ392T	1/4W 3.9K
R811, 812	ERDS2TJ474	1/4W 470K
R819	ERDS2TJ271	1/4W 270
R900	ERDS2TJ821	1/4W 820
R901	ERDS2TJ102	1/4W 1K
R902	ERDS2TJ122	1/4W 1.2K
R903	ERDS2TJ152	1/4W 1.5K
R904	ERDS2TJ182	1/4W 1.8K
R905	ERDS2TJ222	1/4W 2.2K
R906	ERDS2TJ332	1/4W 3.3K
R907	ERDS2TJ472	1/4W 4.7K
R908	ERDS2TJ682T	1/4W 6.8K
R909	ERDS2TJ123	1/4W 12K
R910	ERDS2TJ223	1/4W 22K
R911	ERDS2TJ683	1/4W 68K
R912, 913	ERDS2TJ102	1/4W 1K
R914-917	ERDS2TJ471	1/4W 470
R918-920	ERDS2TJ102	1/4W 1K
R921, 922	ERDS2TJ272T	1/4W 2.7K
R923	ERDS2TJ102	1/4W 1K
R1009	ERDS2TJ332	1/4W 3.3K
		CAPACITORS
C1, 2	ECBA1H681KB5	50V 680P
C3, 4	ECBT1H101KB5	50V 100P

Ref. No.	Part No.	Values & Remarks
C5, 6	ECBT1E103ZF	25V 0.01U
C7, 8	ECEA1EKA4R7B	25V 4.7U
C9	ECBA1H681KB5	50V 680P
C10	ECBA1H681KB5	50V 680P
C11, 12	ECBT1H101KB5	50V 100P
C13, 14	ECBT1E103ZF	25V 0.01U
C15, 16	ECEA1EKA4R7B	25V 4.7U
C17, 18	ECBT1H102KB5	50V 1000P
C19, 20	ECBT1H4R7KC5	50V 4.7P
C21, 22	ECBT1H102KB5	50V 1000P
C101	RCE1AM471BV	10V 470U
C102	ECEA1CKA100B	16V 10U
C103, 104	ECQB1H153JF3	50V 0.015U
C105, 106	ECEA0JKA101B	6.3V 100U
C107, 108	ECEA1CKA100B	16V 10U
C109, 110	ECEA1HKAR47B	50V 0.47U
C111, 112	ECEA1AKA220B	10V 22U
C113, 114	ECEA1HKA2R2B	50V 2.2U
C115, 116	ECEA1EKA4R7B	25V 4.7U
C117, 118	ECEA0JKA470B	6.3V 47U
C119, 120	ECEA1HKAR22B	50V 0.22U
C121-124	ECQB1H392JF3	50V 3900P
C125, 126	ECQB1H183JF3	50V 0.018U
C127, 128	ECQB1H103JF3	50V 0.01U
C129, 130	ECBT1H181KB5	50V 180P
C131	RCE1AM471BV	10V 470U
C132, 133	ECBT1H470J5	50V 47P
C134	ECEA1CKA100B	16V 10U
C135	ECEA0JKA101B	6.3V 100U
C136	ECQB1H393JF3	50V 0.039U
C137, 138	ECEA1EKA4R7B	25V 4.7U
C139, 140	ECBT1H561KB5	50V 560P
C141, 142	ECKR2H121KB5	500V 120P
C145, 146	ECQB1H821JF3	50V 820P
C147, 148	ECBT1E103ZF	25V 0.01U
C149, 150	ECBT1H102KB5	50V 1000P
C151, 152	ECEA1EKA4R7B	25V 4.7U
C153	ECQB1H332JF3	50V 3300P
C155, 156	ECBT1C682KR5	16V 6800P
C157	ECBT1H102KB5	50V 1000P
C160	ECEA1AKA221B	10V 220U
C201	ECQB1H472JF3	50V 4700P
C202	ECEA1HKA3R3B	50V 3.3U
C203	ECBT1H470J5	50V 47P
C204, 205	ECBT1E103ZF	25V 0.01U
C206	ECEA1HKA2R2B	50V 2.2U
C301	ECQP1103JZ3	100V 0.01U
C341	ECFR1E183KR	25V 0.018U
C342-344	ECKD1H682KB	50V 6800P
C345	ECBT1E103ZF	25V 0.01U
C346	ECEA1EKA220B	25V 22U
C348	ECEA1HKA010B	50V 1U

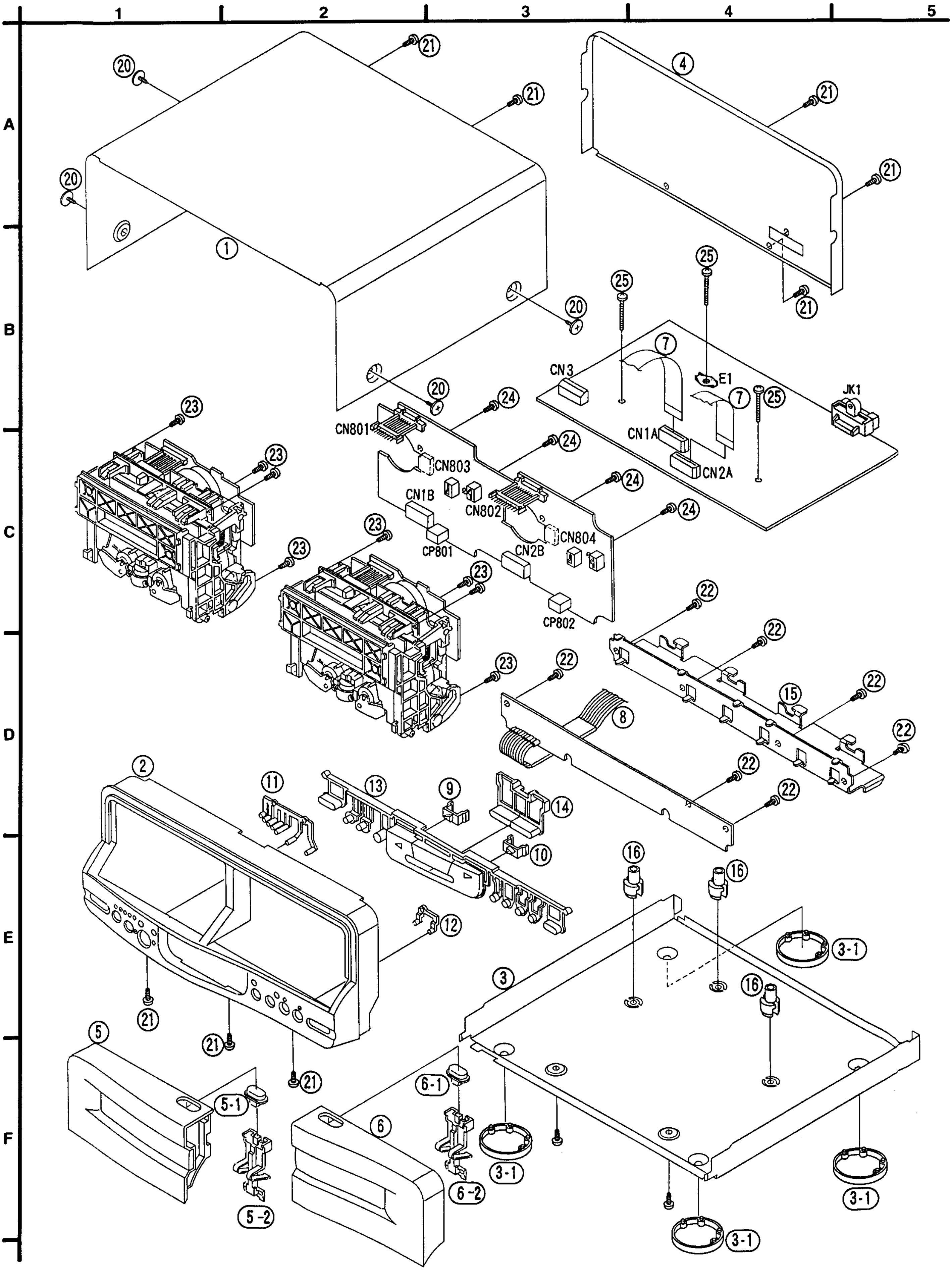
Ref. No.	Part No.	Values & Remarks
C349, 350	ECBT1H221KB5	50V 220P
C351	ECEA1EKA4R7B	25V 4.7U
C352	ECBT1E103ZF	25V 0.01U
C356, 357	ECKR1H392KB5	50V 3900P
C358	ECQP1681JZ3	16V 680P
C359	ECEA1EKA4R7B	25V 4.7U
C360, 361	ECKR1H392KB5	50V 3900P
C371	ECBT1E103ZF	25V 0.01U
C401, 402	ECBT1H391KB5	50V 390P
C403, 404	ECBT1C332KR5	16V 3300P
C407, 408	ECQV1H124JM3	50V 0.12U
C409, 410	ECBT1H102KB5	50V 1000P
C411, 412	ECEA1HKAR47B	50V 0.47U
C415, 416	RCE1AM471BV	10V 470U
C417, 418	ECQB1H222JF3	50V 2200P
C419, 420	ECEA1CKA100B	16V 10U
C423, 424	ECEA1HKA010B	50V 1U
C425, 426	ECQB1H152JF3	50V 1500P
C427, 428	ECEA1HKAR47B	50V 0.47U
C431, 432	ECEA1EKA4R7B	25V 4.7U
C435, 436	ECEA1EKA4R7B	25V 4.7U
C437	ECEA1HKA100B	50V 10U
C601, 602	ECFR1H104ZF	50V 0.1U
C603	ECEA1EU222B	25V 2200U ⚠
C604, 605	ECA1EM102B	25V 1000U ⚠
C606	ECBT1E103ZF	25V 0.01U
C607	ECEA1AKA101B	10V 100U
C608	ECEA1AKA221B	10V 220U
C609, 610	ECBT1E103ZF	25V 0.01U
C611	ECEA1HKA010B	50V 1U
C612	ECKR2H682PE	500V 6800P
C613	ECEA1AU470	10V 47U
C614, 615	ECBT1E103ZF	25V 0.01U
C701, 702	ECBT1E103ZF	25V 0.01U
C703	ECEA0JU102	6.3V 1000U
C704, 705	ECBT1E103ZF	25V 0.01U
C706	ECEA1HKAR33B	50V 0.33U
C707	ECEA1HKAR22B	50V 0.22U
C731	ECBT1E103ZF	25V 0.01U
C777	ECEA1HKA3R3B	50V 3.3U
C801, 802	ECBT1E223ZF	25V 0.022U
C805, 806	ECBT1H104ZF5	50V 0.1U
C807	ECEA1VKA470B	35V 47U
C808	ECEA1AKA101B	10V 100U
C811, 812	ECBT1H101KB5	50V 100P
C813, 814	ECBT1H104ZF5	50V 0.1U
C815-818	ECBT1H101KB5	50V 100P
C821	ECEA0JKA221B	6.3V 220U
C901	ECBT1H470J5	50V 47P
C902	ECBT1H104ZF5	50V 0.1U
C903	ECBT1H470J5	50V 47P

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0265-K	CABINET	
2	RGP0409-K	FRONT PANEL	
3	RFKJSCH404EK	BOTTOM BOARD ASS'Y	
3-1	RKA0011-3	FOOT	
4	RGR0198A-A	REAR PANEL	
5	RYF0287A-K	CASSETTE LID ASS'Y(DECK1)	
5-1	RGU0958B-K	BUTTON(CLOSE)	
5-2	RMM0122	LOD	
6	RYF0288-K	CASSETTE LID ASS'Y(DECK2)	
6-1	RGU0958B-K	BUTTON(CLOSE)	
6-2	RMM0122	LOD	
7	REZ0702	FPC(15P)	
8	REZ0723	CABLE ASS'Y(10P)	
9	RGL0243-Q	LEADING LIGHT PANEL(R.PLAY)	
10	RGL0244-Q	LEADING LIGHT PANEL(F.PLAY)	
11	RGL0245-Q	LEADING LIGHT PANEL(A)	
12	RGL0246-Q	LEADING LIGHT PANEL(B)	
13	RGU1094-K	MAIN BUTTON	
14	RGU1095-K	TPS BUTTON	
15	RMA0792	ANGLE	
16	SHE185-2	P.C.B.SPACER	
20	RHD30007	SCREW	
21	XTBS3+8JFZ1	SCREW	
22	XTBS26+8J	SCREW	
23	XTB3+10JFZ	SCREW	
24	XTW2+6S	SCREW	
25	XTB3+16JFZ	SCREW	
		MECHANISM PARTS	
		DECK1(PLAYBACK)	
101	RXF0045	FLY WHEEL(F) ASS'Y	
101-1	RMQ0420	WASHER	
102	RXF0046	FLY WHEEL(R) ASS'Y	
102-1	RMQ0421	WASHER	
103	RML0272	SWITCH LEVER	
104	RXQ0265	HEAD BASE ASS'Y	
104-1	RMB0266	SPRING	
104-2	RXM0036	ROD	
105	RGK0582-K	ORNAMENT PLATE	
106	RXQ0317-1	HEAD ASS'Y(P.B)	
106-1	RHD17015	AZIMUTH ADJUSTMENT SCREW	
106-2	RMB0352	SPRING	
106-3	RMQ0360A	CONNECTOR HOLDER	
107	RDV108ZA	BELT	
108	RDK0019A	MAIN GEAR	
109	RMB0261	SPRING	
110	RMB0262	SPRING	
111	RMB0263	SPRING	

Ref. No.	Part No.	Part Name & Description	Remarks
112	RMB0264	SPRING	
113	RUW147ZA	SPRING	
114	RML0267A	LEVER	
115	RML0268A	LEVER	
116	RMM0091A	BRAKE ROD	
117	RMS0398-1	PLUNGER	
118	RSJ0003	SOLENOID	
119	RUS609ZC	SPRING	
120	RXG0036	REEL TABLE GEAR	
121	RXL0106	IDLER LEVER	
122	RXP0052	PINCH ROLLER(F)ASS'Y	
122-1	RMB0259	SPRING	
123	RXP0053	PINCH ROLLER(R)ASS'Y	
123-1	RMB0260	SPRING	
124	RDG0206A-1	GEAR	
125	RDG0209A	GEAR	
126	REM0036-1	CAPSTAN MOTOR	
127	REM0043	REEL MOTOR	
128	RHD26013	SCREW	
129	RMC0169	SPRING	
130	RMQ0314A	SPACER	
131	RXG0037	GEAR ASS'Y	
134	RMB0269	SPRING	
135	RML0270A-1	LEVER	
136	RMQ0312A	DRIVE GEAR	
137	RMB0268	SPRING	
138	RML0271A	LEVER	
139	XTW2+6S	SCREW	
140	RXR0018	REEL TABLE	
141	XTW2+5L	SCREW	
142	XTW26+12S	SCREW	
143	XTW26+6L	SCREW	
145	RFKJSCH404AK	SUB CHASSIS ASS'Y	
146	RFKJSCH404BK	CHASSIS ASS'Y	
149	RYF0263-K1	CASSETTE HOLDER ASS'Y	
149-1	RUS757ZA	SPRING	
150	RMQ0430	NYLON RIVET	
151	RSC0395	PLATE	
152	XTV26+4FFZ	SCREW	
153	RMB0388	SPRING	
154	XWG2	WASHER	
155	XTN2+6J	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS	
		DECK2(REC./PLAYBACK)	
201	RXF0045	FLY WHEEL(F) ASS'Y	
201-1	RMQ0420	WASHER	
202	RXF0046	FLY WHEEL(R) ASS'Y	
202-1	RMQ0421	WASHER	
203	RML0272	SWITCH LEVER	
204	RXQ0265	HEAD BASE ASS'Y	
204-1	RMB0266-1	SPRING	
204-2	RXM0036	ROD	
205	RGK0582-K	ORNAMENT PLATE	
206	RXQ0316-1	HEAD ASS'Y(R/P)	
206-1	RHD17015	AZIMUTH ADJUSTMENT SCREW	
206-2	RMB0352	SPRING	
206-3	RMQ0360A	CONNECTOR HOLDER	
207	RDV108ZA	BELT	
208	RDK0019A	MAIN GEAR	
209	RMB0261	SPRING	
210	RMB0262	SPRING	
211	RMB0263	SPRING	
212	RMB0264	SPRING	
213	RUW147ZA	SPRING	
214	RML0267A	LEVER	
215	RML0268A	LEVER	
216	RMM0091A	BRAKE ROD	
217	RMS0398-1	PLUNGER	
218	RSJ0003	SOLENOID	
219	RUS609ZC	SPRING	
220	RXG0036	REEL TABLE GEAR	
221	RXL0106	IDLER LEVER	
222	RXP0052	PINCH ROLLER(F)ASS'Y	
222-1	RMB0259	SPRING	
223	RXP0053	PINCH ROLLER(R)ASS'Y	
223-1	RMB0260	SPRING	
224	RDG0206A-1	GEAR	
225	RDG0209A	GEAR	
226	REM0036-1	CAPSTAN MOTOR	
227	REM0043	REEL MOTOR	
228	RHD26013	SCREW	
229	RMC0169	SPRING	
230	RMQ0314A	SPACER	
231	RXG0037	GEAR ASS'Y	
234	RMB0269	SPRING	
235	RML0270A-1	LEVER	
236	RMQ0312A	DRIVE GEAR	
237	RMB0268	SPRING	
238	RML0271A	LEVER	
239	XTW2+6S	SCREW	
240	RXR0018	REEL TABLE	
241	XTW2+5L	SCREW	
242	XTW26+12S	SCREW	
243	XTW26+6L	SCREW	
245	RFKJSCH404AK	SUB CHASSIS ASS'Y	
246	RFKJSCH404BK	CHASSIS ASS'Y	
249	RYF0263-K1	CASSETTE HOLDER ASS'Y	
249-1	RUS757ZA	SPRING	
250	RMQ0430	NYLON RIVET	
251	RSC0395	PLATE	
252	XTV26+4FFZ	SCREW	
253	RMB0388	SPRING	
254	XWG2	WASHER	
255	XTN2+6J	SCREW	

■ Cabinet Parts Location


1
2
3
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5
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C
D
E
F
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⑤
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5-2
⑥
6-1
6-2
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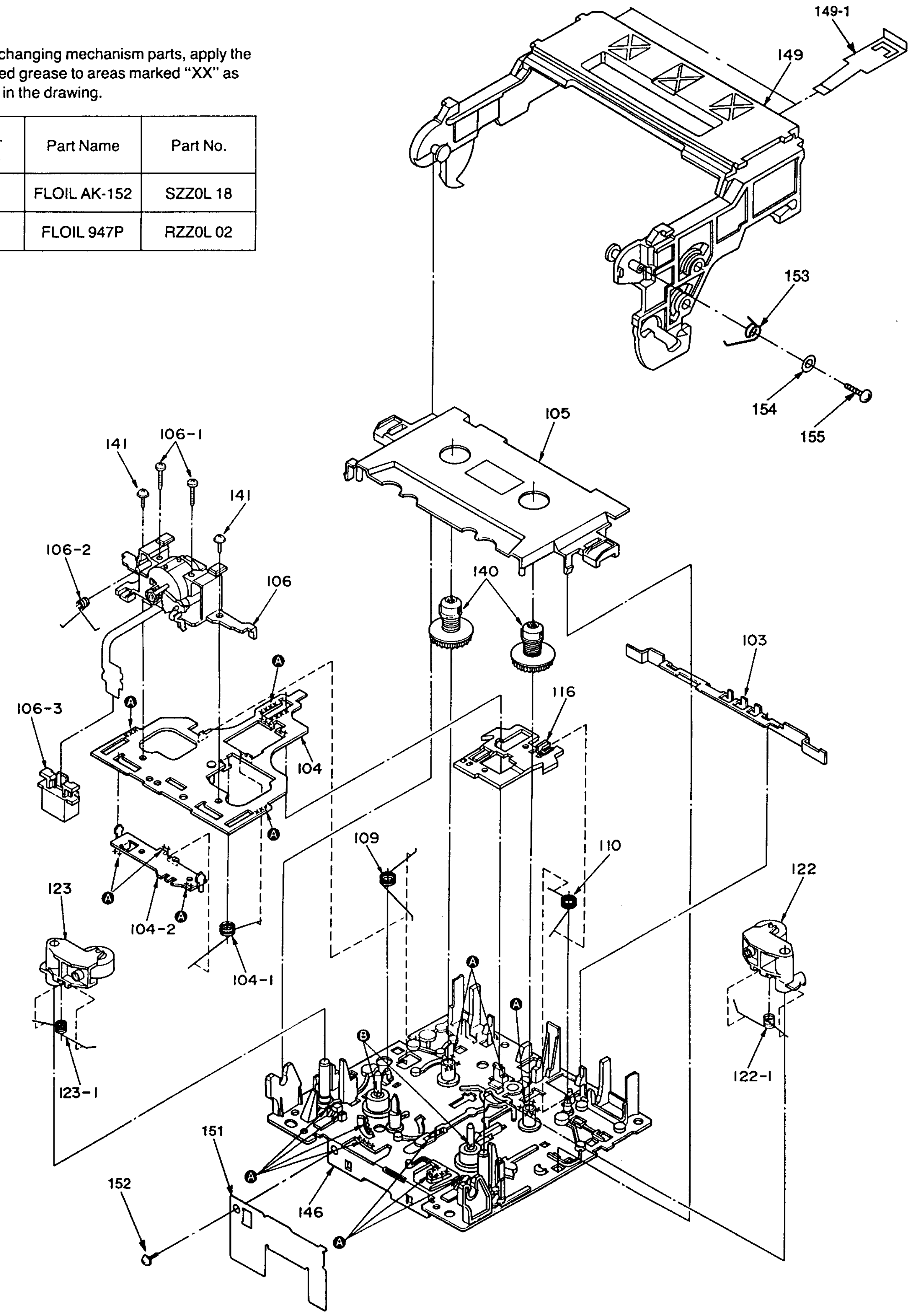
㉕
CN3
E1
JK1
CN1A
CN2A
CN801
CN803
CN802
CN804
CN1B
CN2B
CP801
CP802

Mechanism Parts Location • DECK 1 (PLAYBACK)

Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZ0L 18
Ⓑ	FLOIL 947P	RZZ0L 02


1
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A
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D
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149-1
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153
154
155
105
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106-1
141
106-2
106
140
103
116
106-3
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A
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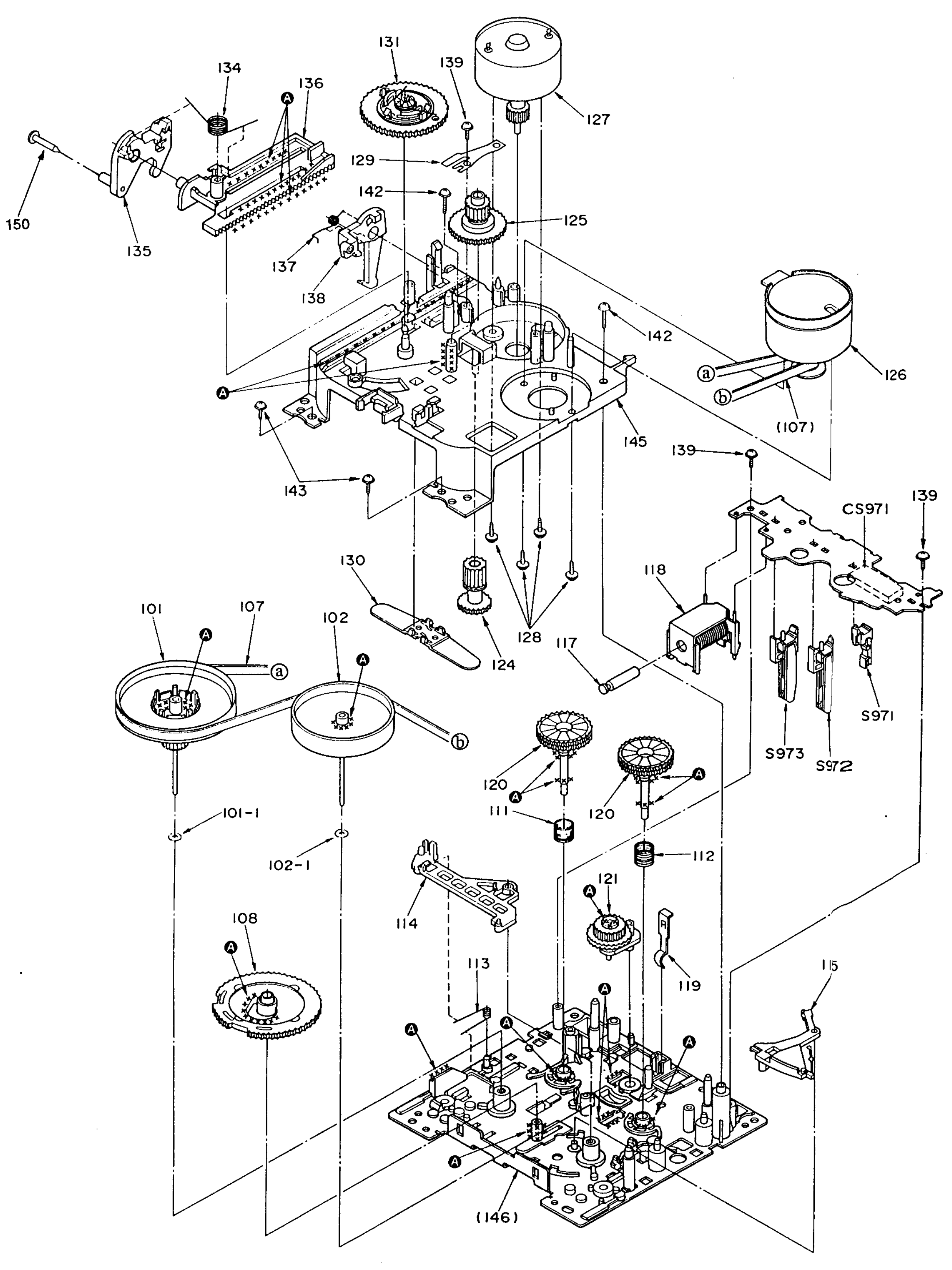
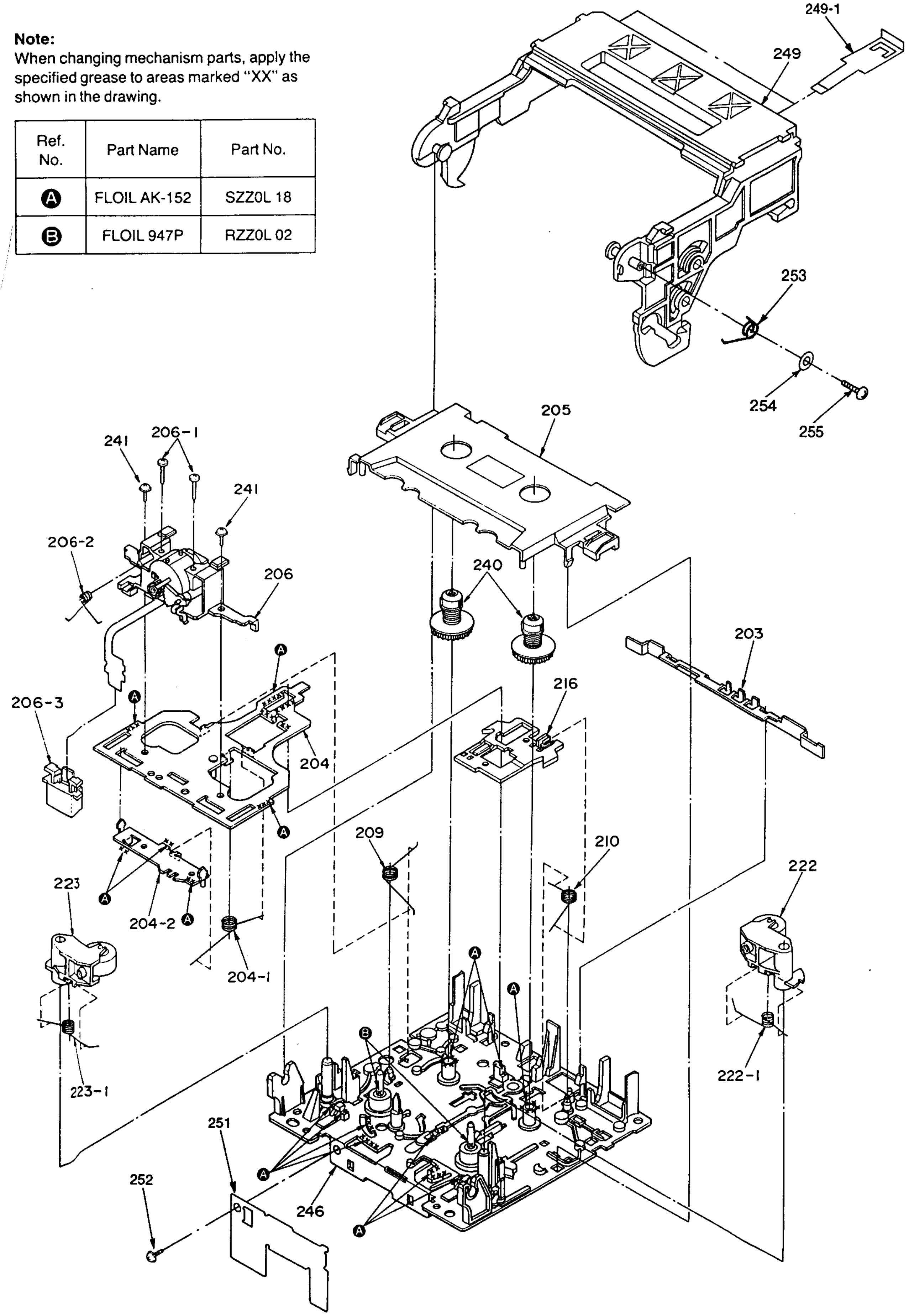
104-1
122-1
123-1
151
B
152
146


6
7
8
9
131
139
127
134
136
A
150
135
129
142
125
137
138
142
126
a
b
(107)
145
143
139
139
CS971
130
118
101
107
102
128
124
117
S971
S973
S972
120
120
111
101-1
112
102-1
121
114
108
113
119
115
(146)

■ Mechanism Parts Location ● DECK 2 (RECORD/PLAYBACK)

Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZ0L 18
Ⓑ	FLOIL 947P	RZZ0L 02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206-1
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206-2
206
240
203
216
206-3
204
Ⓐ
Ⓑ
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210
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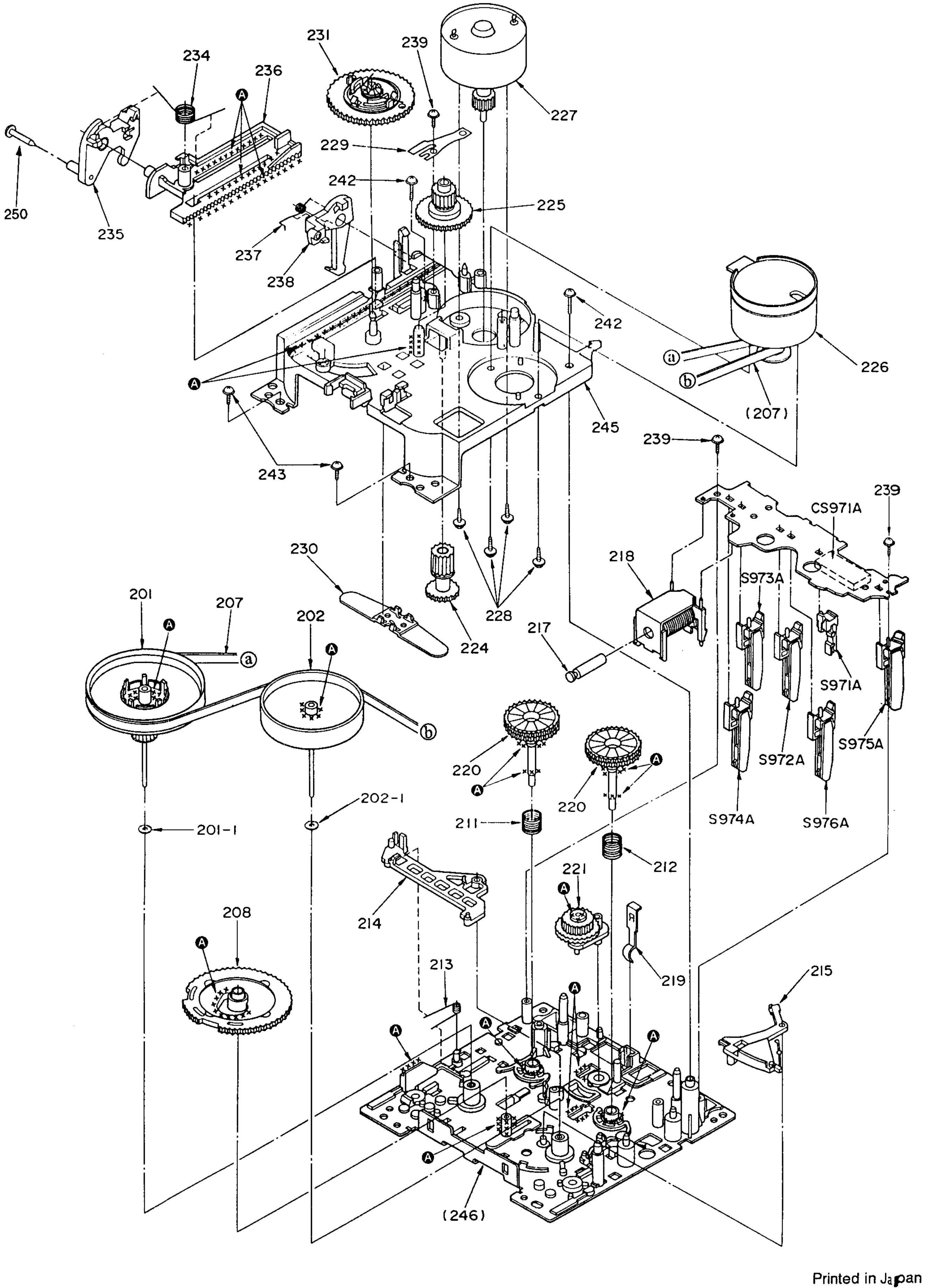
223
204-2
204-1
222-1
223-1
251
252
246


234
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227
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237
238
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226
Ⓐ
ⓐ
ⓑ
(207)
245
239
243
239
CS971A
230
218
201
207
202
228
224
217
S973A
S971A
220
220
S972A
S975A
S974A
S976A
201-1
202-1
211
212
221
214
208
213
219
215
(246)

Printed in Japan
F940712000 TW/HH/TN

ORDER NO. PAAU 940649C6

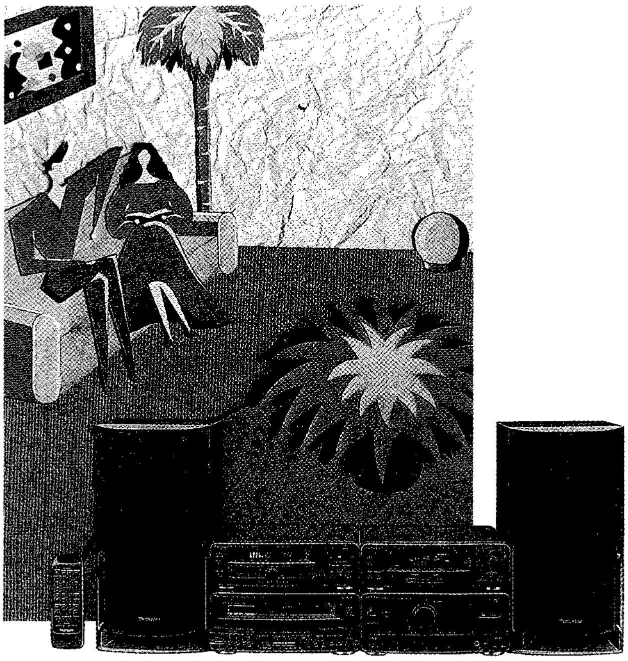
Service Manual

Hi-Fi Speaker System

Speaker System
SB-CH510A

Colour

(K)......Black Type



SPECIFICATIONS

Type	3-way 3-speaker system
Speakers	Woofer: 14 cm cone type Midrange: 6 cm cone type Tweeter: piezo type
Impedance	6 Ω
Input Power	70W, Music 35W, DIN
Output Sound Pressure Level	84 dB/W (1,0 m)
Crossover Frequency	3,3 kHz, 10 kHz
Frequency Range	42 Hz ≈ 22 kHz (-16 dB) 49 Hz ≈ 20 kHz (-10 dB)
Dimensions (W x H x D)	210 x 414 x 244 mm
Weight	4,3 kg

Note:
Design and specifications are subject to change without notice.

ESPECIFICACIONES

Tipo	Sistema con 3 altavoces
Altavoces	Graves: tipo cónico de 14 cm Medios: tipo cónico de 6 cm Agudos: tipo cerámico
Impedancia	6 Ω
Capacidad de potencia	70W, Música 35W, DIN
Nivel de presión acústica de salida	84 dB/W (1,0 m)
Frecuencia de cruce	3,3 kHz, 10 kHz
Respuesta de frecuencias	42 Hz ≈ 22 kHz (-16 dB) 49 Hz ≈ 20 kHz (-10 dB)
Dimensiones (W x H x D)	210 x 414 x 244 mm
Peso	4,3 kg

Nota:
Estas especificaciones están sujetas a cualquier cambio sin previo aviso.

SPECIFICATIONS

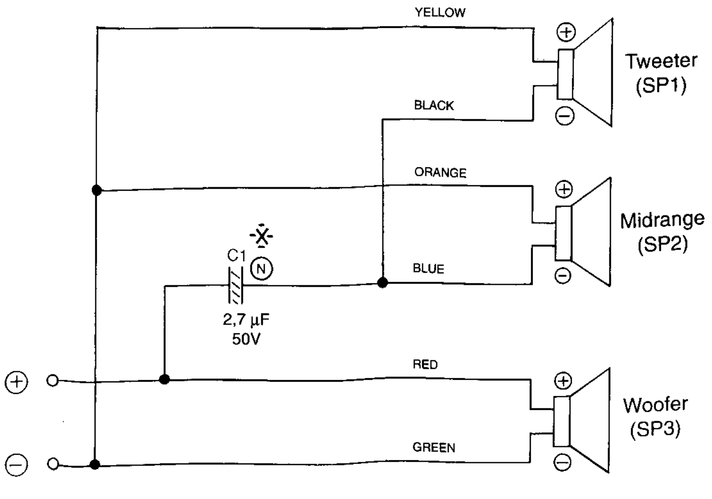
Type	3-voies 3-haut-parleurs
Haut-parleurs	Graves: 14 cm type a cone Moyennes: 6 cm type a cone Aigus: type ceramique
Impédance	6 Ω
Entrée maximale	70W, Musique 35W, DIN
Niveau de pression sonore de sortie	84 dB/W (1,0 m)
Fréquence de conmutation	3,3 kHz, 10 kHz
Gamme de fréquences	42 Hz ≈ 22 kHz (-16 dB) 49 Hz ≈ 20 kHz (-10 dB)
Dimensions (W x H x D)	210 x 414 x 244 mm
Poids	4,3 kg

Note:
Suject à changement sans preavis.

SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with development of new technology.)
(Este esquema puede ser modificado en cualquier momento con el desarrollo de nuevas tecnologías.)

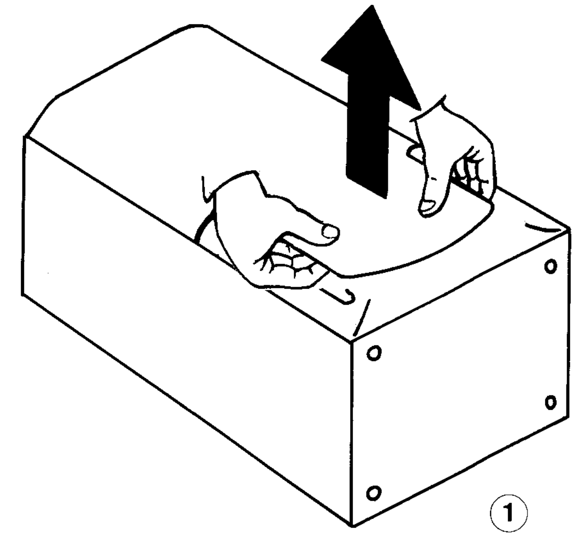
-X- Ⓝ NON-POLAR CAPACITOR



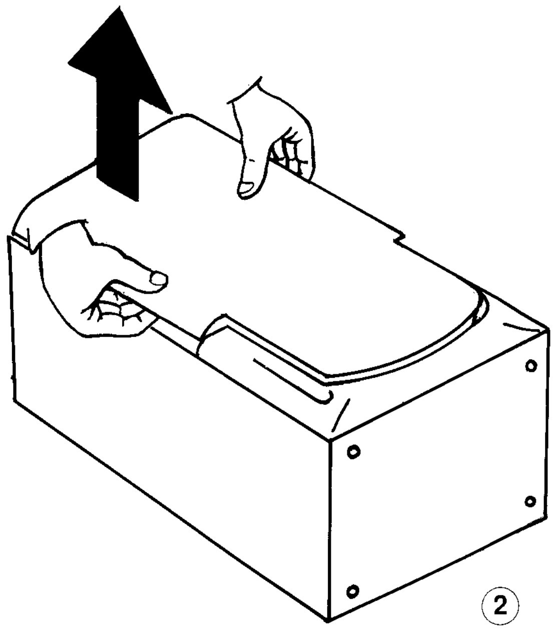
Technics

DISASSEMBLY INSTRUCTIONS

Ref. No. 1	Removal of the Speaker Net
Procedure 1	



①

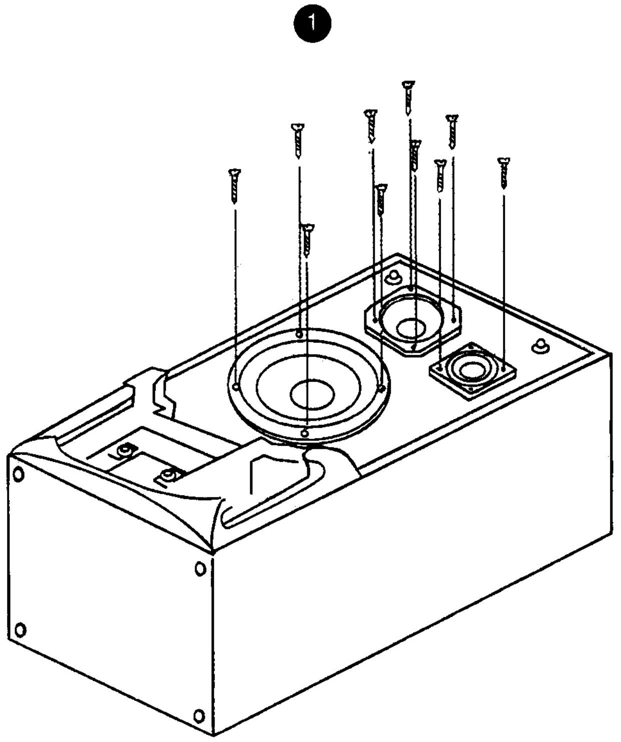


②

1 - Put the Speaker System upside down carefully for scratches.

2 - Lift up the Net Frame using the finger as it is show in the picture ① and ②.

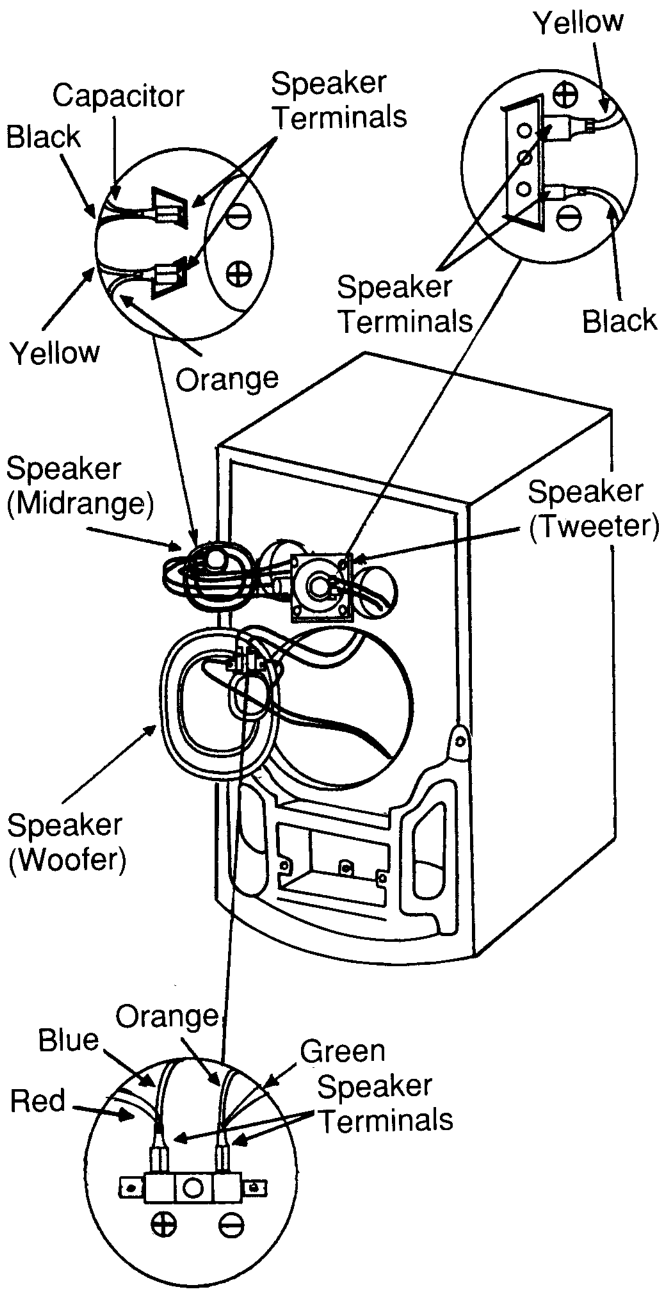
Ref. No. 2	Removal of the Speakers
Procedure 1→2	



1 - Lay down the Speaker System on its back as shown.

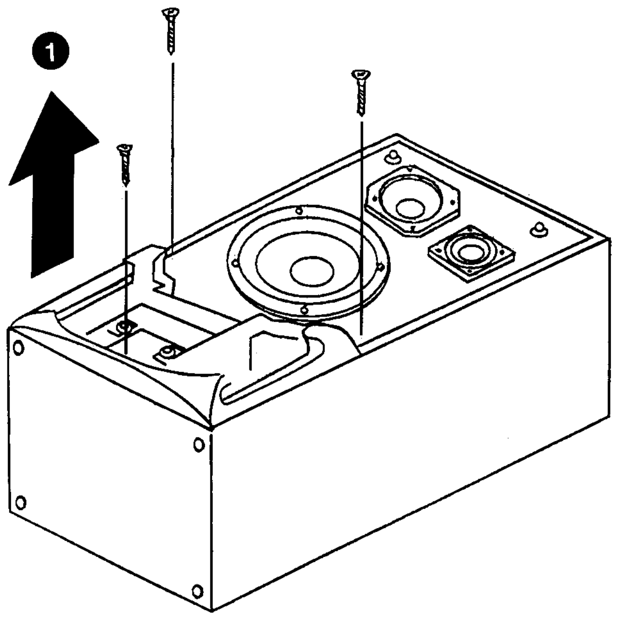
2 - Remove the 10 screws ❶

Ref. No. 3	Removal of the Speaker Terminal
Procedure 1→2→3	


Yellow
Capacitor
Black
Speaker Terminals
Speaker Terminals
Black
Yellow
Orange
Speaker (Midrange)
Speaker (Tweeter)
Speaker (Woofer)
Orange
Blue
Red
Green
Speaker Terminals

- Remove the 6 Speaker Terminals.

Ref. No. 4	Removal of the Front Panel
Procedure 1→4	

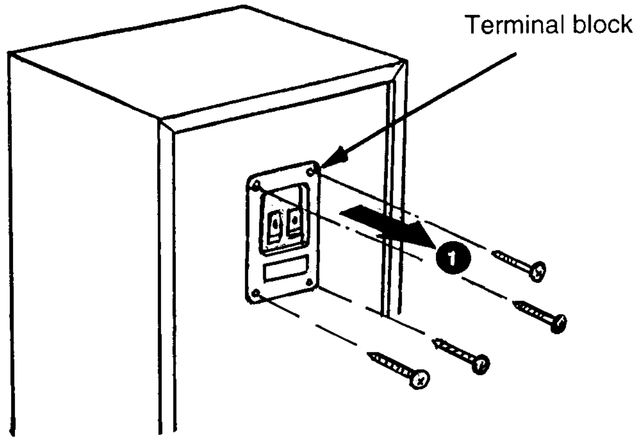


- Remove the 3 screws.
- Remove the Front Panel in the direction of the arrow ❶

■ ATTENTION

When remove the Front Panel be carefull with the two Bass Port to prevent broken it.

Ref. No. 5	Removal of the Terminal Block
Procedure 5	


Terminal block
❶

- Remove the 4 screws.
- Remove the Terminal Block in the direction of the arrow ❶

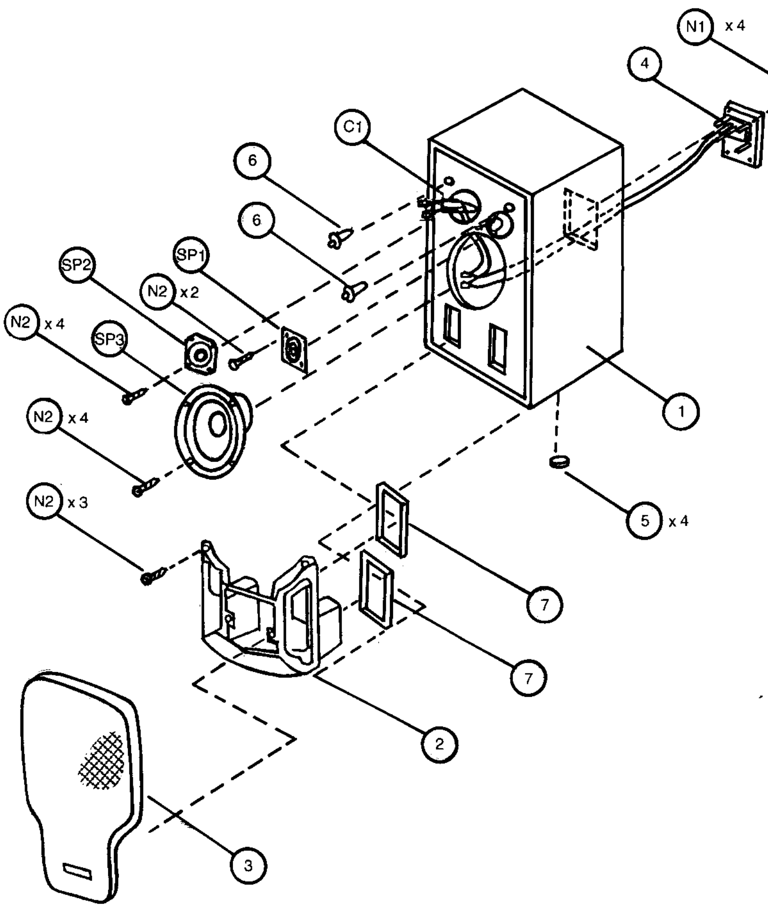
■ REPLACEMENT PARTS LIST

Notes 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. PAES indicates parts that are supplied by PAES.
Nota 1. El código está indicado en la mayoría de las piezas. Por favor, use este código para sus pedidos.
2. La indicación PAES significa recambios suministrados a través de PAES.

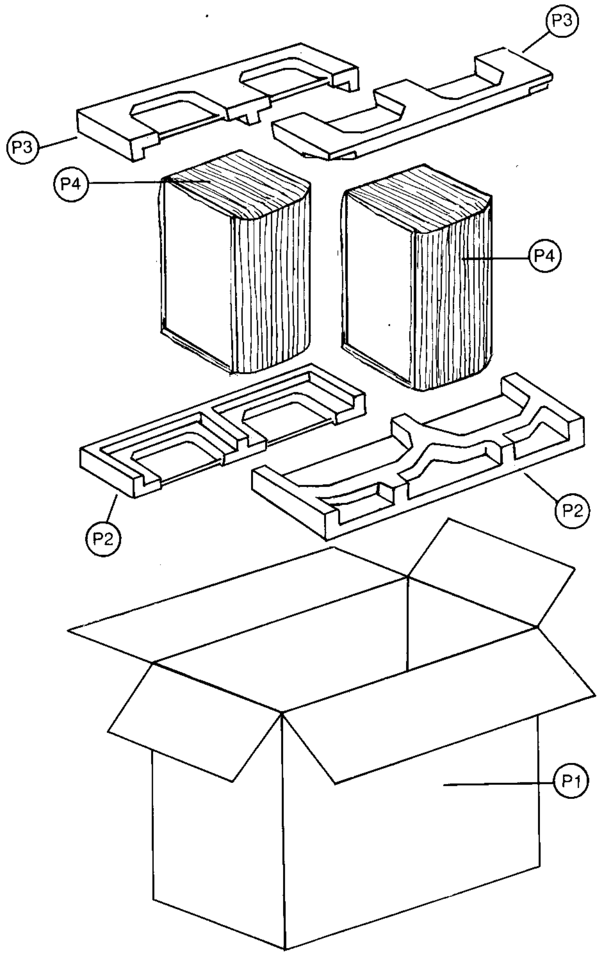
Ref. No.	Part No.	Part Name & Description	Remarks
		SPEAKER (S)	
SP1	EASJ3FP07B3	SPEAKER (TWEETER)	PAES
SP2	EAS6PH319A6	SPEAKER (MIDRANGE)	PAES
SP3	EAS14PL304C6	SPEAKER (WOOFER)	PAES
		CAPACITOR(S)	
C1	REX8GCH510A	CAPACITOR ASS'Y	PAES
		CABINET PARTS	
1	SYM8GCH510A	CABINET ASS'Y	PAES
2	RGP8GBCH510A	FRONT PANEL	PAES
3	SYB8GCH510A	GRILL	PAES

Ref. No.	Part No.	Part Name & Description	Remarks
4	SWE8GCH510A	TERMINAL ASS'Y	PAES
5	RKA8G0066-K	LEG	PAES
6	RKQ8G0025	CATCH PIN	PAES
7	RMQ8G0469	GASKET	PAES
		SCREW (S)	
N1	XTNS42+16FG	SCREW	PAES
N2	XTNS42+20	SCREW	PAES
		PACKING PARTS	
P1	SPG8GBCH510A	CARTON BOX	PAES
P2	SPS8GCH510AB	PAD (DOWN)	PAES
P3	SPS8GCH510CD	PAD (UP)	PAES
P4	SPHS8G415	SHEET	PAES

■ EXPLODED VIEW



■ PACKAGING



PAES Printed in Spain
A940609000JS

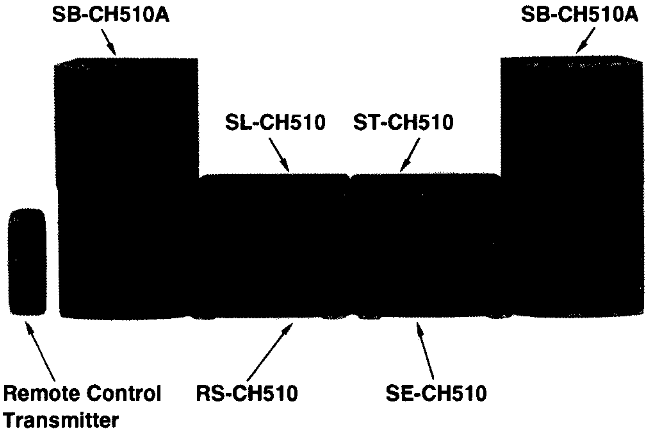
ORDER NO. AD9407196C8

Service Manual

Tuner/Sound Processor

Tuner

ST-CH510



Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Colour

(K) .... Black Type

Areas

Suffix for Model No.	Area	Colour
(E)	Europe	(K)
(EG)	Germany and Italy	
(GC)	Asia, Latin America, Middle Near East and Africa, Oceania	

System: SC-CH510

Specifications

■ Pre-amplifier section

Input sensitivity/impedance	
For (E) and (EG) areas	
PHONO	2.5 mV/47 kΩ
DCC	250 mV/15 kΩ
For (GC) area	
AUX	250 mV/15 kΩ
DCC	250 mV/15 kΩ
Output level	
DCC RECOUT	150 mV/1.5 kΩ
Frequency response	
For (E) and (EG) areas	
PHONO	30 Hz – 15 kHz/+1.5 to –2.0 dB
DCC	30 Hz – 20 kHz
For (GC) area	
AUX	30 Hz – 20 kHz
DCC	30 Hz – 20 kHz

■ EQ, SFP section

Center frequency	200 Hz, 1 kHz, 7 kHz
Fixed mode	
5 modes	HALL, HEAVY, CLEAR, CAR, HP ST

■ FM tuner section

Frequency range	87.50 – 108.00 MHz (0.05 MHz steps)
Sensitivity	1.8 µV (IHF usable)
S/N 26 dB	1.5 µV
S/N	MONO 70 dB (75 dB, IHF)
Stereo separation 1 kHz	35 dB
Antenna terminal(s)	75 Ω (unbalance)

■ AM tuner section

Frequency range	
MW	522 – 1611 kHz (9 kHz steps) 530 – 1620 kHz (10 kHz steps)
LW	144 – 288 kHz (9 kHz steps)
Sensitivity (S/N 20 dB)	
MW	500 µV/m
LW	50 µV

■ Timer section

Clock	Quarts-lock type
Function	24-hour programmable; Play timer (1 time), Rec timer (1 time), Sleep (120 min., 1 min. intervals)
Setting	1 minute – 23 hours 59 minutes (1 min. intervals)

■ General

Dimensions (W × H × D)	270 × 89 × 274 mm
Weight	1.75 kg

Notes:

1. Specifications are subject to change without notice.
   Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

System	Tuner/sound processor	Compact disc player	Amplifier	Cassette Deck	Speakers
SC-CH510	**ST-CH510**	SL-CH510	SE-CH510	RS-CH510	* SB-CH510A

Technics®

*: For (E), (EG) areas ...... Made in PAES
For (GC) area .... Made in NABEL

■ Contents

Page

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- Setting the Time 2
- Operation Check and Main Component Replacement Procedures 3, 4
- Schematic Diagram .... 5~16
- Printed Circuit Board Diagram .... 17~20

Page

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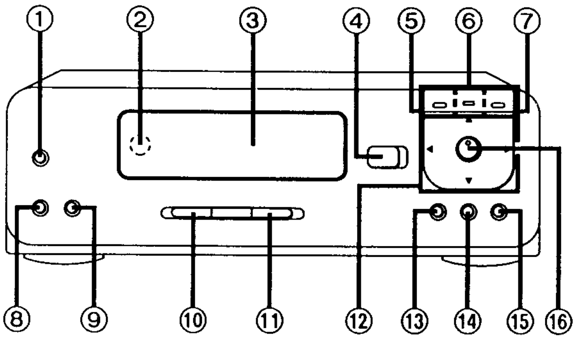
- Block Diagram .... 21~23
- Power Supply with Tuner ST-CH510 24
- Function of IC Terminals 25
- Replacement Parts List .... 26~30
- Cabinet Parts Location 31

NOTE:
Refer to the service manual for Model No. SE-CH510 (ORDER No. AD9407197C8) for information on "Accessories", "Stacking the Components", "Connections" and "Packaging".

**This unit (tuner/sound processor ST-CH510) is equipped with a self-diagnostic function.
For details of the self-diagnostic function, refer to the service manual (ORDER No. AD9407191C2) for SL-CH510 (CD player).**

■ Location of Controls

- ① **Auto preset button**
- ② **Remote control signal sensor**
- ③ **Display section**
- ④ **Source input select button**
- ⑤ **FM button**
- ⑥ **Tuner indicator**
- ⑦ **LW/MW select button**
- ⑧ **Flat button**
- ⑨ **EQ SPACE mode select button**
- ⑩ **KARAOKE mode select button**
- ⑪ **V.bass button**
- ⑫ **Tuning/select button and indicators**
- ⑬ **Clock/timer button**
- ⑭ **Record timer button**
- ⑮ **Play timer button**
- ⑯ **Set button and indicator**



(To be continued)

■ Setting the Time

This is a 24-hours display clock.
These instructions explain how to set the timer for 16:25 (4:25 p.m.) on Wednesday.

1 **Switch on the power.**

2 ① **Press CLOCK/TIMER to show "CLOCK".**
Within 8 seconds
② **Press SET.**

3 ① **Press ◁ SELECT or SELECT ▷ to select the day.**
② **Press SET.**

4 ① **Press ◁ SELECT or SELECT ▷ to select the hour.**
② **Press SET.**

5 ① **Press ◁ SELECT or SELECT ▷ to select the minutes.**
② **Press SET to finish setting the time.**

The display will return to the previous display after about 2 seconds.

When "SUN 0:00" flashes A

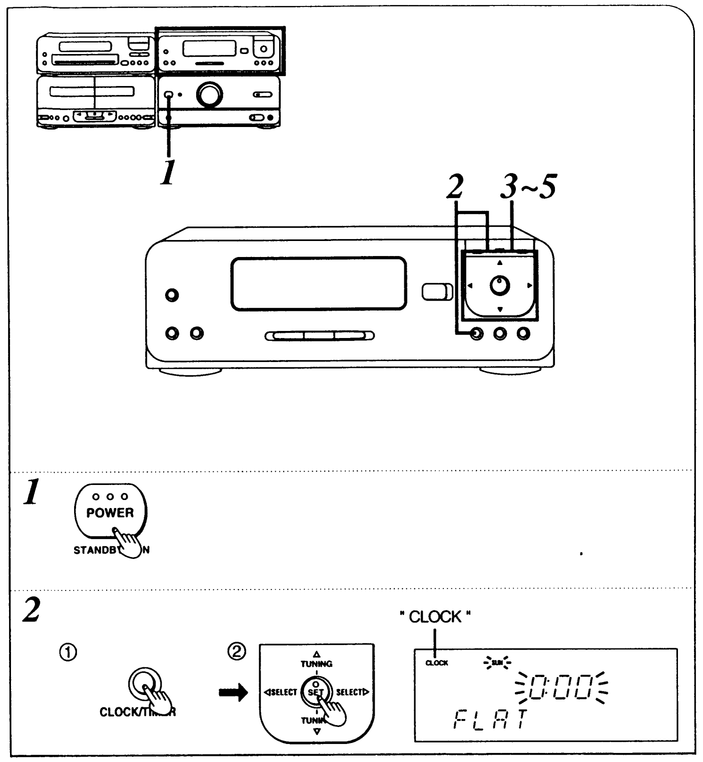
It flashes when you connect the AC power supply cord for the first time or if there has been a power failure.
If this happens, reset the time.

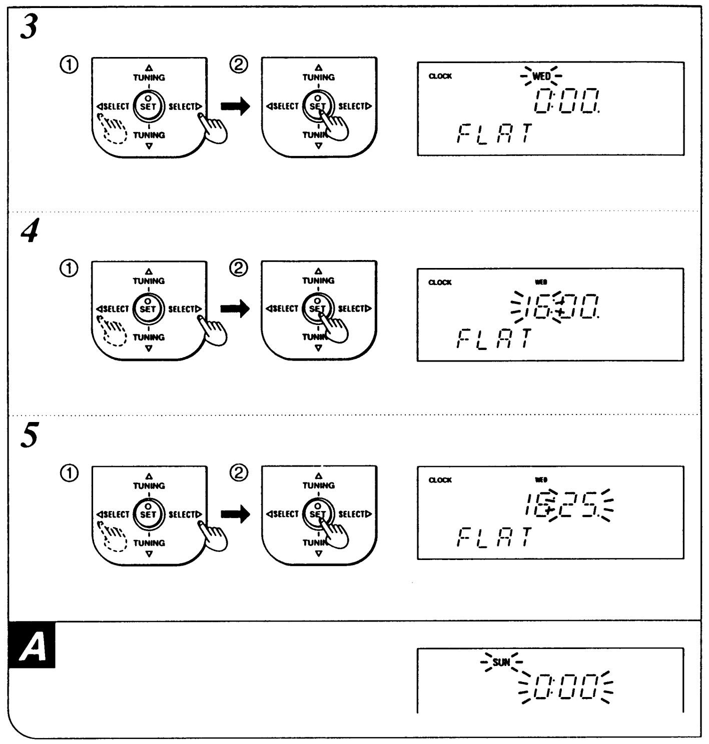
If the minutes setting has gone wrong:

1. Press CLOCK/TIMER.
2. Press SET 3 times.
3. Press ◁ SELECT or SELECT ▷ to set the minutes, and then press SET.

To display the clock again:

Press CLOCK/TIMER.
The clock display will appear for about 8 seconds.


1
2
3~5
1
POWER
STANDBY/ON
2
①
②
CLOCK/TIMER
TUNING
SELECT
SET
* CLOCK *
CLOCK
0:00
FLAT

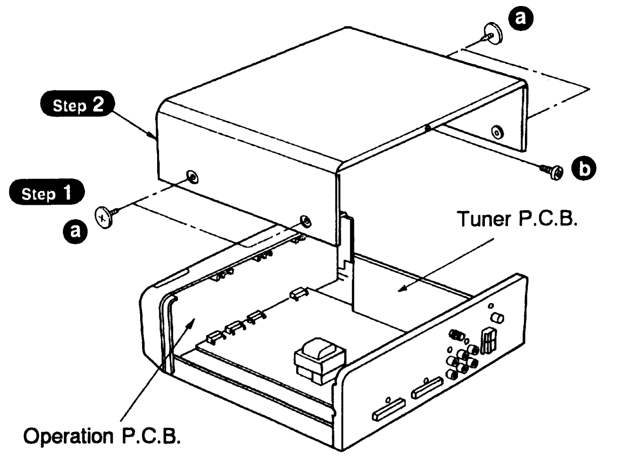

3
①
②
TUNING
SELECT
SET
CLOCK
WED
0:00
FLAT
4
①
②
16:00
FLAT
5
①
②
18:25
FLAT
A
SUN
0:00

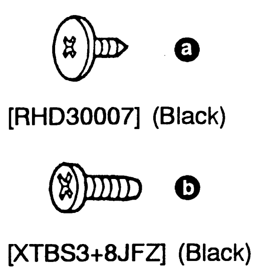
■ Operation Check and Main Component Replacement Procedures

NOTE

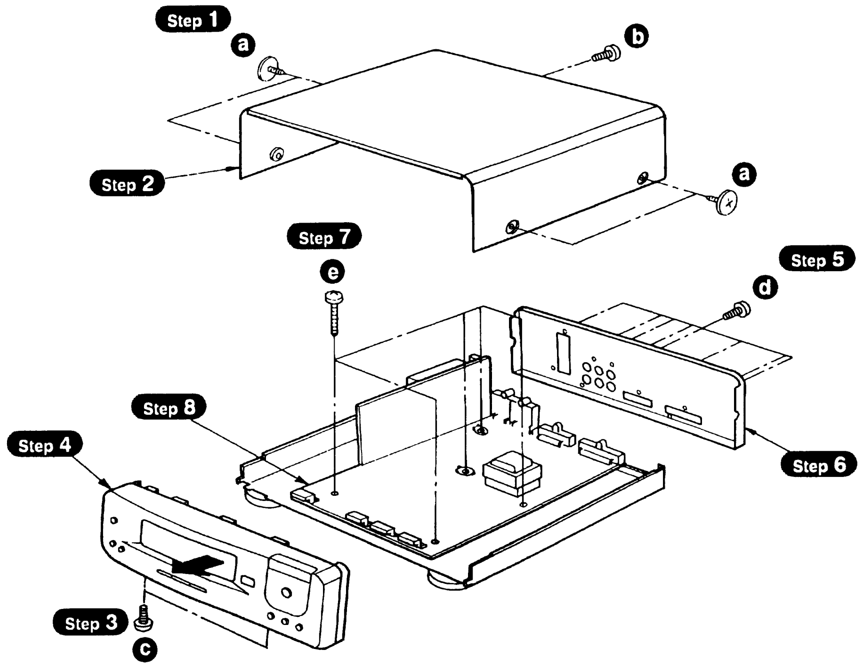
1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Illustrated screws are equivalent to actual size.**

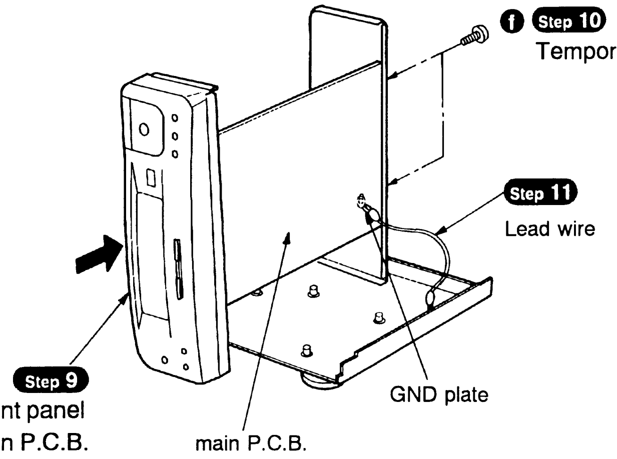
1. Checking for the tuner P.C.B. and operation P.C.B.


Step 2
Step 1
a
a
b
Tuner P.C.B.
Operation P.C.B.


a
[RHD30007] (Black)
b
[XTBS3+8JFZ] (Black)

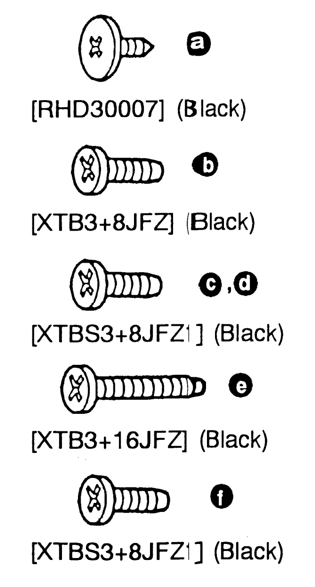
2. Checking for the main P.C.B.


Step 1
a
b
Step 2
a
Step 7
e
Step 5
d
Step 8
Step 4
Step 6
Step 3
c

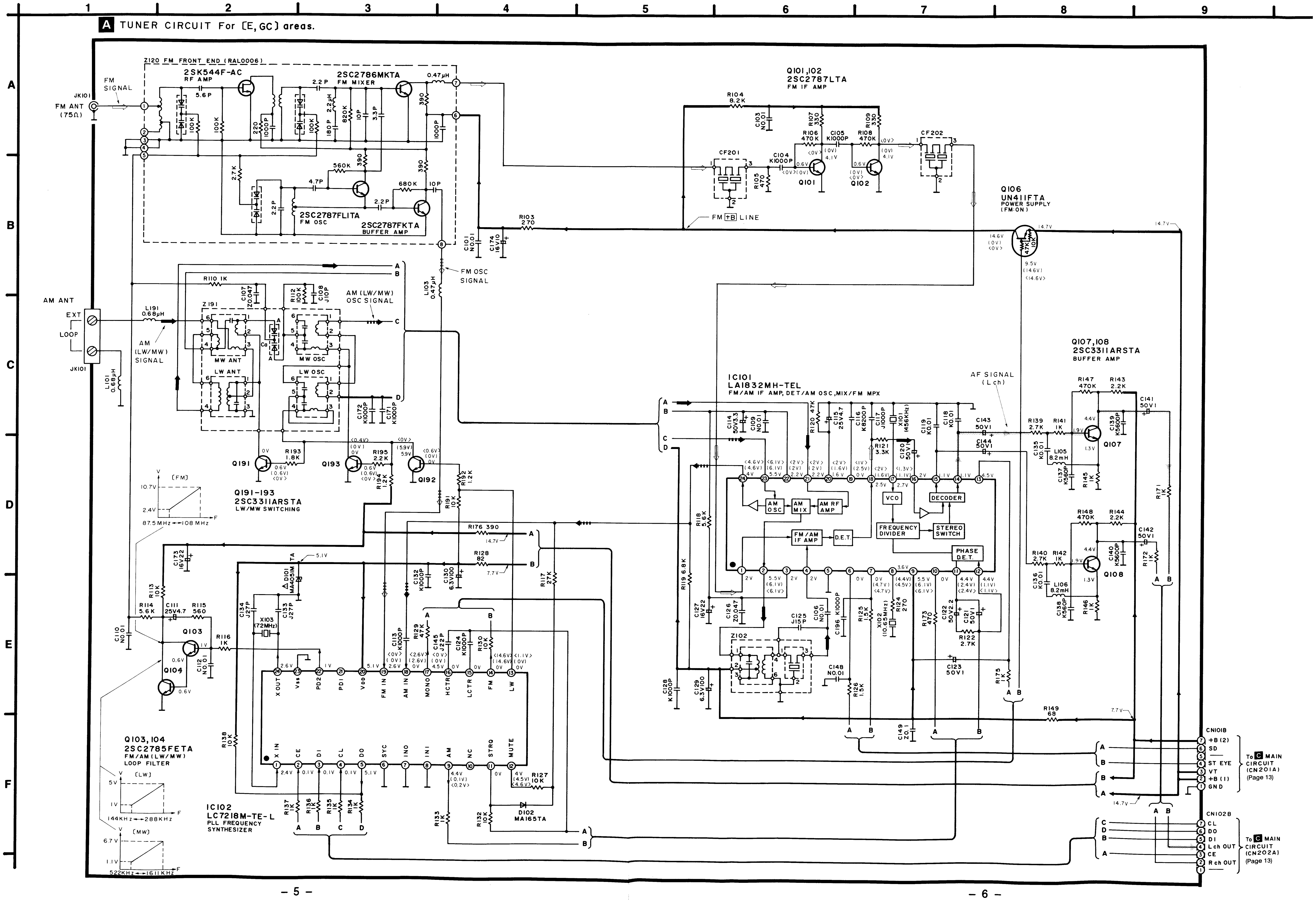

f
Step 10
Step 11
Lead wire
Step 9
GND plate
main P.C.B.

Step 10 Temporarily secure with screw.

Step 9 Reinstall the front panel ass'y to the main P.C.B.


a
[RHD30007] (Black)
b
[XTB3+8JFZ] (Black)
c,d
[XTBS3+8JFZ1] (Black)
e
[XTB3+16JFZ] (Black)
f
[XTBS3+8JFZ1] (Black)

■ Schematic Diagram • Tuner circuit for (E) and (GC) areas (Parts list on Page 26~30)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
A TUNER CIRCUIT For [E, GC] areas.
Z120 FM FRONT END (RAL0006)
2SK544F-AC
RF AMP
2SC2786MKTA
FM MIXER
0.47μH
2SC2787FLITA
FM OSC
2SC2787FKTA
BUFFER AMP
JK101
FM ANT (75Ω)
FM SIGNAL
FM OSC SIGNAL
L103 0.47μH
R103 270
C101 N0.01
C174 16V10
R104 8.2K
Q101, 102
2SC2787LTA
FM IF AMP
CF201
CF202
Q101
Q102
FM +B LINE
Q106
UN411FTA
POWER SUPPLY (FM·ON)
AM ANT
EXT
LOOP
L191 0.68μH
L101 0.68μH
AM (LW/MW) SIGNAL
R110 1K
Z191
MW ANT
LW ANT
MW OSC
LW OSC
AM (LW/MW) OSC SIGNAL
Q191
Q193
Q192
Q191–193
2SC3311ARSTA
LW/MW SWITCHING
[FM]
10.7V
2.4V
87.5MHz ↔ 108MHz
Q103
Q104
Q103, 104
2SC2785FETA
FM/AM (LW/MW) LOOP FILTER
[LW]
5V
1V
144KHz ↔ 288KHz
[MW]
6.7V
1.1V
522KHz ↔ 1611KHz
X103 (7.2MHz)
D101 MA4051M
IC102
LC7218M-TE-L
PLL FREQUENCY SYNTHESIZER
XOUT
Vss
PD2
PDI
VDD
FM IN
AM IN
MONO
HCTR
LCTR
FM
LW
X IN
CE
DI
CL
DO
SYC
INO
INI
AM
NC
STRO
MUTE
D102 MA165TA
R176 390
R128 82
IC101
LA1832MH-TEL
FM/AM IF AMP, DET/AM OSC, MIX/FM MPX
AM OSC
AM MIX
AM RF AMP
FM/AM IF AMP
D.E.T
VCO
DECODER
FREQUENCY DIVIDER
STEREO SWITCH
PHASE DET.
X101 (456KHz)
X102 (10.25MHz)
Z102
AF SIGNAL (L ch)
Q107, 108
2SC3311ARSTA
BUFFER AMP
Q107
Q108
R147 470K
R143 2.2K
R148 470K
R144 2.2K
C141 50V1
C142 50V1
L105 8.2mH
L106 8.2mH
R149 68
CN101B
+B (2)
SD
ST EYE
VT
+B (1)
GND
To C MAIN CIRCUIT (CN201A) (Page 13)
CN102B
CL
DO
DI
L ch OUT
CE
R ch OUT
To C MAIN CIRCUIT (CN202A) (Page 13)
14.7V
7.7V

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
- Voltage values and waveforms are measured as indicated in the schematic diagram when test points between **TP901** and **TP902**, and between **TP903** and **TP904** are shorted.

No mark : FM mode ( ) : AM (MW) mode < > : AM (LW) mode

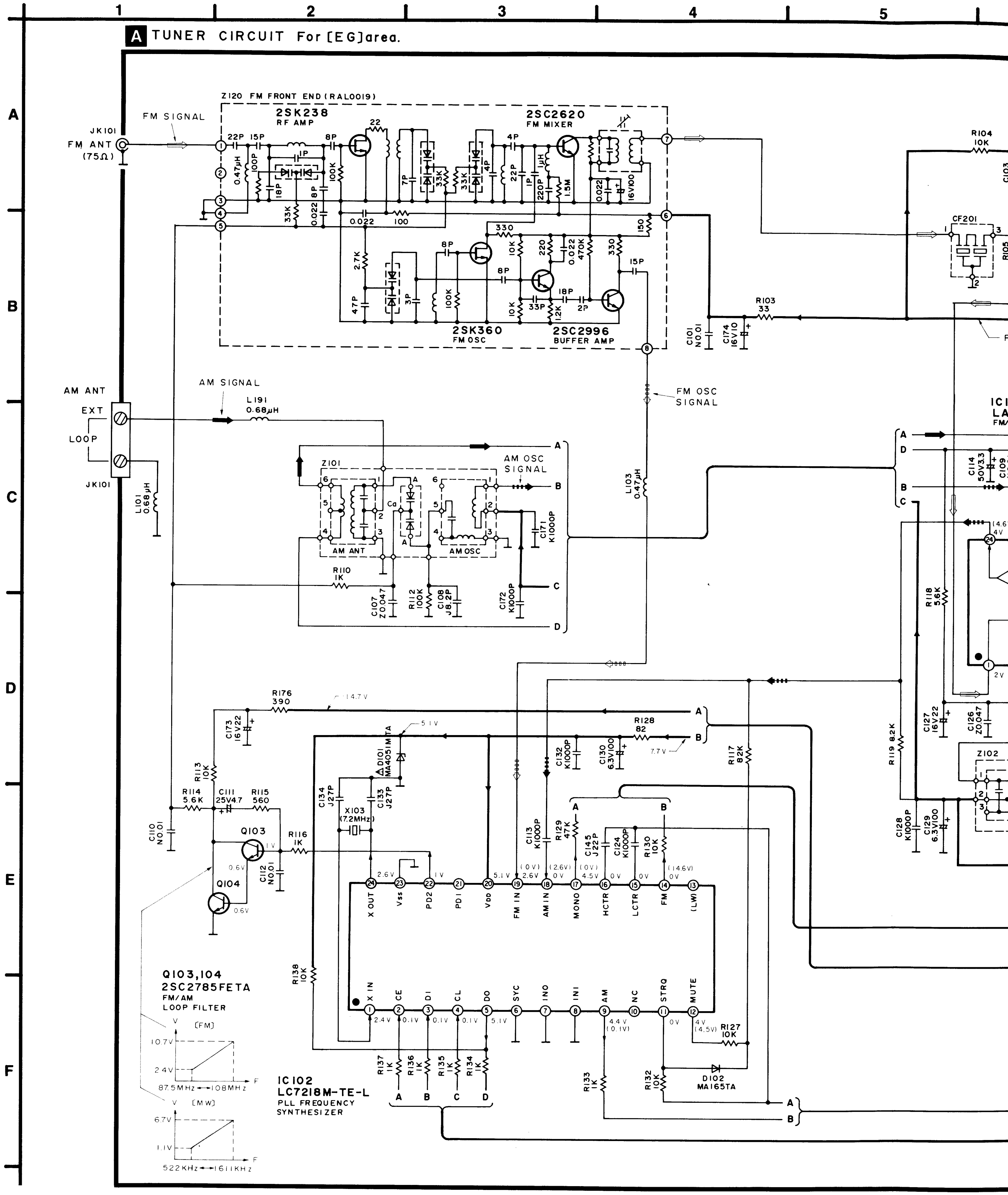
- Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
Cover the parts boxes made of plastics with aluminum foil.
Ground the soldering iron.
Put a conductive mat on the work table.
Do not touch the legs of IC or LSI with the fingers directly.

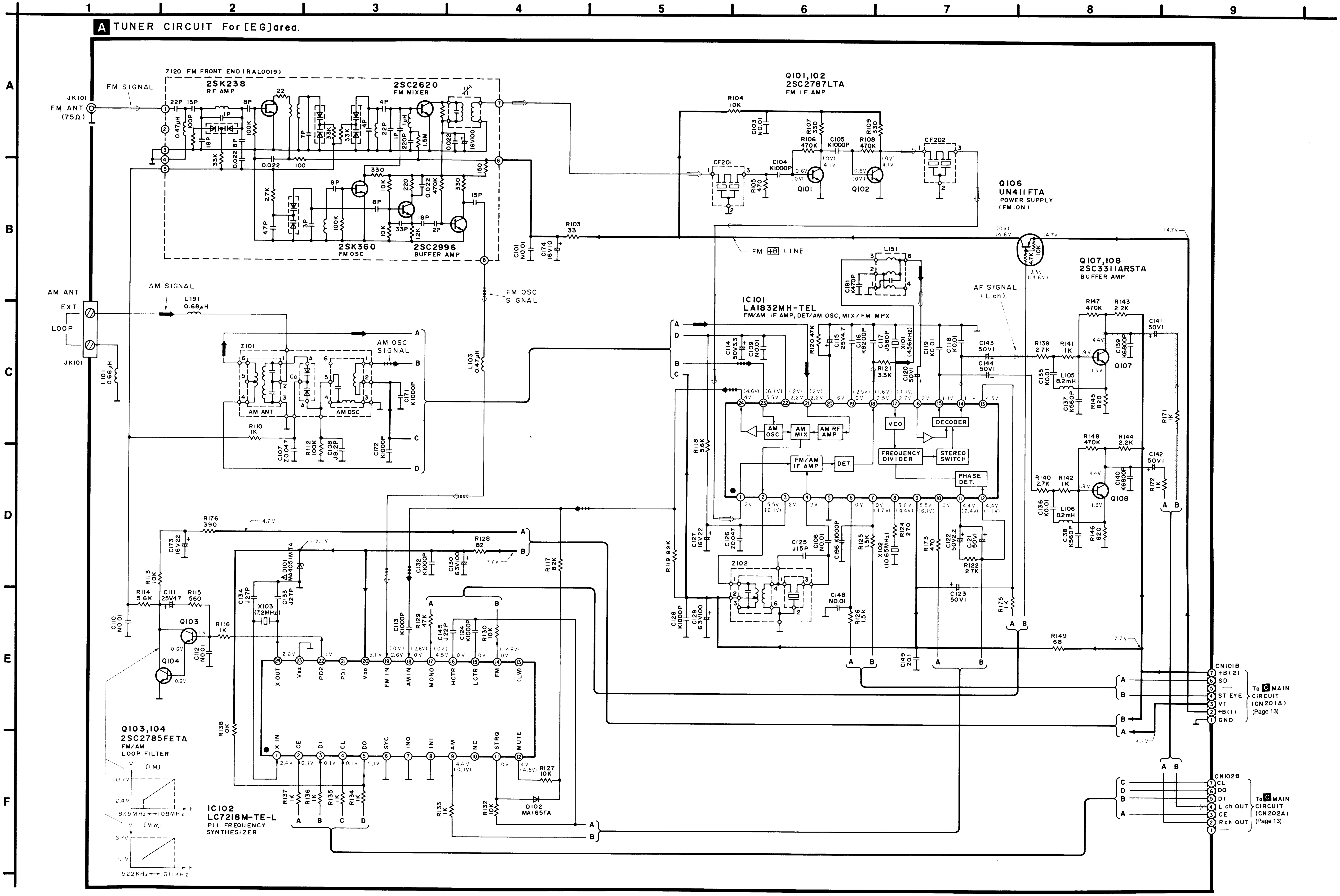
- **Voltage and signal line**

━━▶ : Positive voltage line
➡ : AM (LW/MW) signal line ■■■➡ : AM (LW/MW) OSC signal line
⇨ : FM signal line □□□⇨ : FM OSC signal line
⇨ : AF signal (Lch) line

● Tuner circuit for (EG) area (Parts list on Page 26~30)

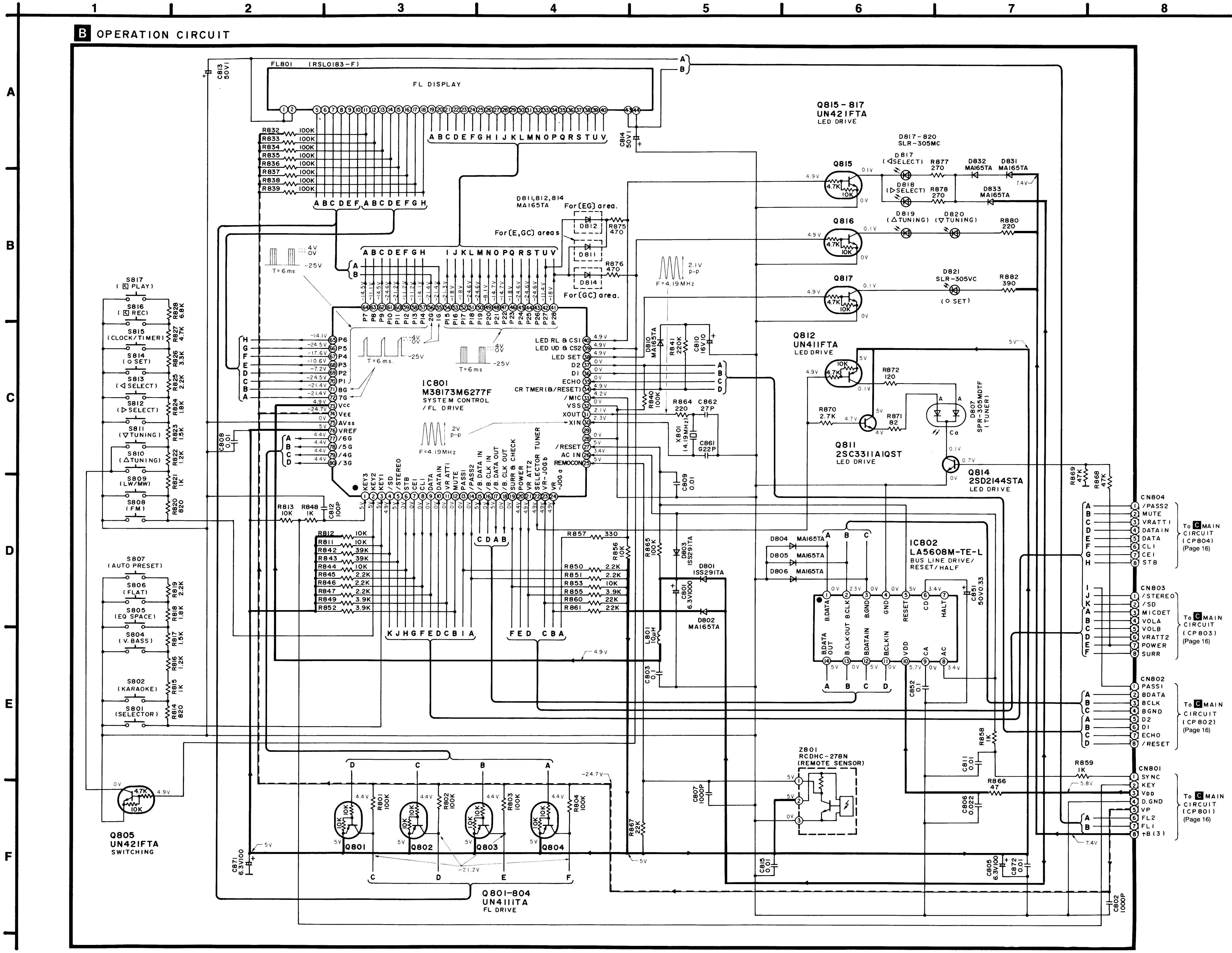

1
2
3
4
5
A
B
C
D
E
F
A TUNER CIRCUIT For [EG] area.
Z120 FM FRONT END (RAL0019)
FM SIGNAL
JK101
FM ANT
(75Ω)
2SK238
RF AMP
2SC2620
FM MIXER
2SK360
FM OSC
2SC2996
BUFFER AMP
CF201
R104
10K
R103
33
C101
N0.01
C174
16V10
FM OSC
SIGNAL
AM ANT
EXT
LOOP
JK101
AM SIGNAL
L191
0.68μH
L101
0.68μH
Z101
AM ANT
AM OSC
AM OSC
SIGNAL
R110
1K
C107
Z0047
R112
100K
C108
J8.2P
C172
K1000P
C171
K1000P
L103
0.47μH
R176
390
14.7V
C173
16V22
R113
10K
R114
5.6K
C111
25V47
R115
560
C110
N0.01
Q103
Q104
R116
1K
C112
N0.01
C134
J27P
X103
(7.2MHz)
C133
J27P
D101
MA4051MTA
5.1V
R128
82
7.7V
C132
K1000P
C130
63V100
R117
82K
C113
K1000P
R129
47K
C145
J22P
C124
K1000P
R130
10K
R119 82K
C127
16V22
C126
Z0047
Z102
C128
K1000P
C129
6.3V100
IC1
LA
X OUT
Vss
PD2
PD1
VDD
FM IN
AM IN
MONO
HCTR
LCTR
FM
(LW)
X IN
CE
DI
CL
DO
SYC
INO
IN1
AM
NC
STRQ
MUTE
R138
10K
R127
10K
D102
MA165TA
R137 1K
R136 1K
R135 1K
R134 1K
R133 1K
R132 10K
Q103,104
2SC2785FETA
FM/AM
LOOP FILTER
V [FM]
10.7V
2.4V
87.5MHz ←→ 108MHz
V [MW]
6.7V
1.1V
522KHz ←→ 1611KHz
IC102
LC7218M-TE-L
PLL FREQUENCY
SYNTHESIZER

● Tuner circuit for (EG) area (Parts list on Page 26~30)


A TUNER CIRCUIT For [EG] area.
JK101
FM ANT (75Ω)
FM SIGNAL
Z120 FM FRONT END (RAL0019)
2SK238 RF AMP
2SC2620 FM MIXER
2SK360 FM OSC
2SC2996 BUFFER AMP
Q101,102 2SC2787LTA FM IF AMP
CF201
CF202
Q101
Q102
Q106 UN411FTA POWER SUPPLY (FM:ON)
FM +B LINE
FM OSC SIGNAL
AM ANT
EXT
LOOP
AM SIGNAL
L191 0.68μH
Z101
AM ANT
AM OSC
AM OSC SIGNAL
IC101 LA1832MH-TEL FM/AM IF AMP, DET/AM OSC, MIX/FM MPX
L151
AM OSC
AM MIX
AM RF AMP
VCO
DECODER
FREQUENCY DIVIDER
STEREO SWITCH
FM/AM IF AMP
DET.
PHASE DET.
Z102
AF SIGNAL (L ch)
Q107,108 2SC3311ARSTA BUFFER AMP
Q107
Q108
Q103
Q104
D101 MA4051M TA
X103 (7.2MHz)
IC102 LC7218M-TE-L PLL FREQUENCY SYNTHESIZER
X OUT
Vss
PD2
PD1
VDD
FM IN
AM IN
MONO
HCTR
LCTR
FM
(LW)
X IN
CE
DI
CL
DO
SYC
INO
IN1
AM
NC
STRQ
MUTE
D102 MA165TA
Q103,104 2SC2785FETA FM/AM LOOP FILTER
[FM]
10.7V
2.4V
87.5MHz←→108MHz
[MW]
6.7V
1.1V
522KHz←→1611KHz
CN101B
+B(2)
SD
ST EYE
VT
+B(1)
GND
To C MAIN CIRCUIT (CN201A) (Page 13)
CN102B
CL
DO
DI
L ch OUT
CE
Rch OUT
To C MAIN CIRCUIT (CN202A) (Page 13)

- **Operation circuit** (Parts list on Page 26～30)

B OPERATION CIRCUIT


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
FL801 (RSL0183-F)
FL DISPLAY
C813 50V1
C814 50V1
R832 100K
R833 100K
R834 100K
R835 100K
R836 100K
R837 100K
R838 100K
R839 100K
A B C D E F G H I J K L M N O P Q R S T U V
A B C D E F A B C D E F G H
D811,812,814 MA165TA
For (EG) area.
For (E,GC) areas
For (GC) area.
D812
D811
D814
R875 470
R876 470
T=6ms
-25V
F=4.19MHz
2.1V p-p
IC801
M38173M6277F
SYSTEM CONTROL / FL DRIVE
LED RL & CS1
LED UD & CS2
LED SET
D2
D1
ECHO
CR TMER (8/RESET)
/MIC
VSS
XOUT
XIN
/RESET
AC IN
REMOCON
P6 P5 P4 P3 P2 P1 8G 7G Vcc VEE AVss VREF /6G /5G /4G /3G
KEY3 KEY2 KEY1 /SD /STEREO STB CE1 CL1 DATA DATA IN VR ATT1 MUTE PASS1 /PASS2 /B DATA IN /B CLK IN /B DATA OUT /B CLK OUT SURR & CHECK POWER VR ATT2 SELECTOR TUNER VR-JOG b VR-JOG a
2V p-p
F=4.19MHz
S817 (▷ PLAY)
S816 (◁ REC)
S815 (CLOCK/TIMER)
S814 (O SET)
S813 (◁ SELECT)
S812 (▷ SELECT)
S811 (▽ TUNING)
S810 (△ TUNING)
S809 (LW/MW)
S808 (FM)
S807 (AUTO PRESET)
S806 (FLAT)
S805 (EQ SPACE)
S804 (V.BASS)
S802 (KARAOKE)
S801 (SELECTOR)
R828 6.8K
R827 4.7K
R826 3.3K
R825 2.2K
R824 1.8K
R823 1.5K
R822 1.2K
R821 1K
R820 820
R819 2.2K
R818 1.8K
R817 1.5K
R816 1.2K
R815 1K
R814 820
R813 10K
R848 1K
C812 100P
C808 0.01
R812 10K
R811 10K
R842 39K
R843 39K
R844 10K
R845 2.2K
R846 2.2K
R847 2.2K
R849 3.9K
R852 3.9K
R857 330
R856 10K
R850 2.2K
R851 2.2K
R853 10K
R855 3.9K
R860 22K
R861 22K
R865 100K
D803 ISS291TA
D801 ISS291TA
C801 6.3V1000
D802 MA165TA
L801 10μH
C803 0.1
C809 0.01
D810 MA165TA
R841 220K
C810 16V10
R840 100K
R864 220
C862 27P
X801 (4.19MHz)
C861 22P
Q815 - 817
UN421FTA
LED DRIVE
D817 - 820 SLR-305MC
Q815
D817 (◁ SELECT)
D818 (▷ SELECT)
R877 270
R878 270
D832 MA165TA
D831 MA165TA
D833 MA165TA
Q816
D819 (△ TUNING)
D820 (▽ TUNING)
R880 220
Q817
D821 SLR-305VC
(O SET)
R882 390
Q812
UN411FTA
LED DRIVE
R872 120
R870 2.7K
R871 82
Q811
2SC3311AIQST
LED DRIVE
D807 SPR-305MDTF (TUNER)
Q814
2SD2144STA
LED DRIVE
R869 47K
R868 47K
D804 MA165TA
D805 MA165TA
D806 MA165TA
IC802
LA5608M-TE-L
BUS LINE DRIVE/ RESET/HALF
B.DATA B.CLK B.GND GND RESET CD HALT
BDATA OUT B.CLKOUT BDATAIN BCLKIN VDD CA AC
C851 50V0.33
C852 0.1
R858 1K
C811 0.01
R866 47
R859 1K
C806 0.022
C807 1000P
Z801
RCDHC-278N
(REMOTE SENSOR)
R867 22K
C815 0.01
C805 6.3V100
C872 0.01
C802 1000P
C871 6.3V100
Q805
UN421FTA
SWITCHING
Q801
Q802
Q803
Q804
R801 100K
R802 100K
R803 100K
R804 100K
Q801-804
UN411ITA
FL DRIVE
-24.7V
-21.2V
CN804
/PASS2
MUTE
VRATT1
DATAIN
DATA
CL1
CE1
STB
To C MAIN CIRCUIT (CP804) (Page 16)
CN803
/STEREO
/SD
MICDET
VOLA
VOLB
VRATT2
POWER
SURR
To C MAIN CIRCUIT (CP803) (Page 16)
CN802
PASS1
BDATA
BCLK
BGND
D2
D1
ECHO
/RESET
To C MAIN CIRCUIT (CP802) (Page 16)
CN801
SYNC
KEY
VDD
D.GND
VP
FL2
FL1
+B(3)
To C MAIN CIRCUIT (CP801) (Page 16)

- This schema

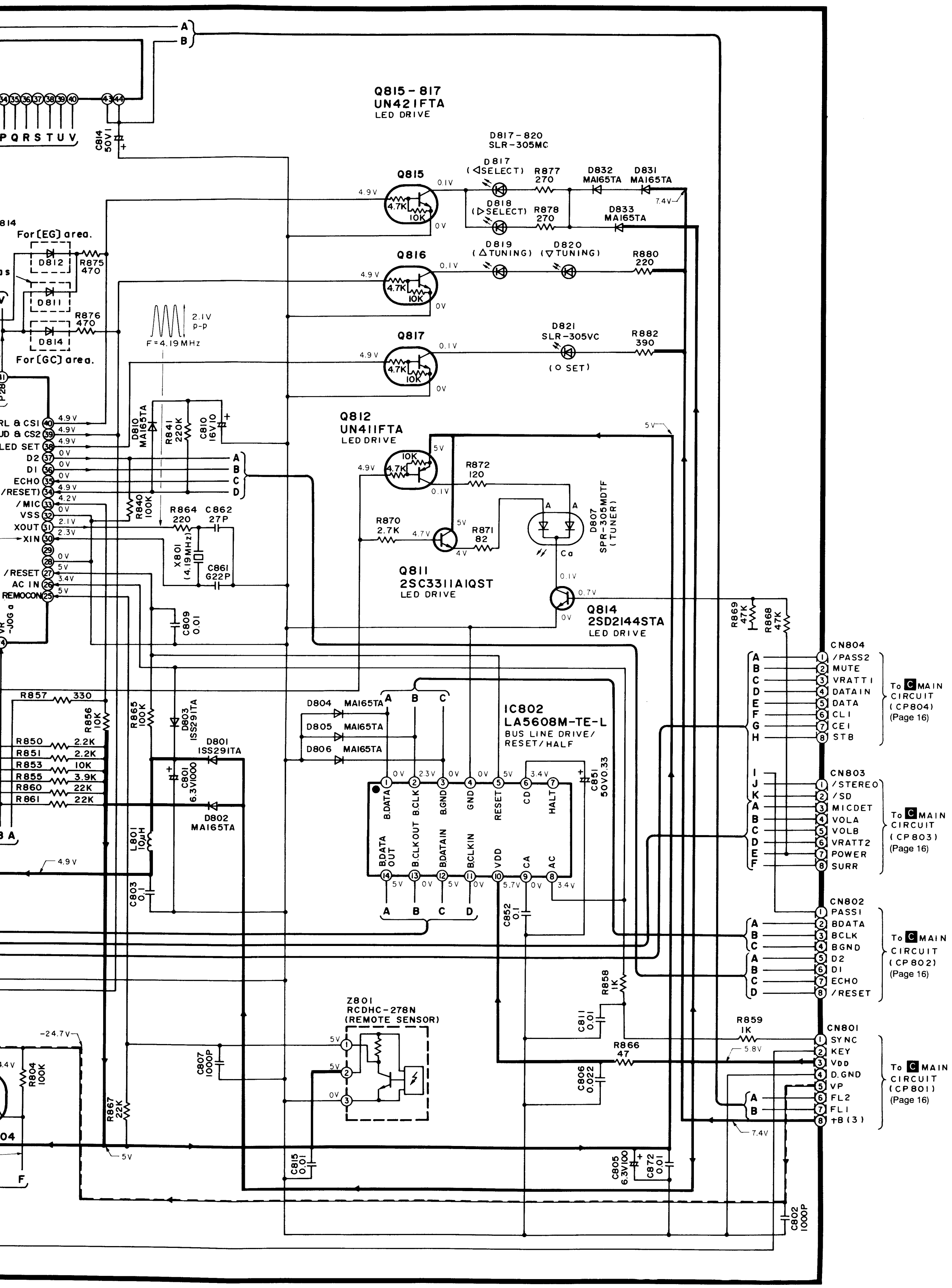
Notes:
- S801 :
- S802 :
- S804 :
- S805 :
- S806 :
- S807 :
- S808 :
- S809 :
- S810 :
- S811 :
- S812 :
- S813 :
- S814 :
- S815 :
- S816 :
- S817 :
- Indicated vo circuit tester some errors
- Voltage valu points betwe

No ma

- Important sa Component Furthermore (capacitors) use only ma

- **Caution!**
IC and LSI a
Secondary
Cover the p
Ground the
Put a condu
Do not touc

- **Voltage and**


Q815 - 817
UN421FTA
LED DRIVE
D817 - 820
SLR-305MC
Q815
Q816
Q817
D817 (◁SELECT)
D818 (▷SELECT)
D819 (△TUNING)
D820 (▽TUNING)
D821
SLR-305VC
(○ SET)
R877 270
R878 270
R880 220
R882 390
D832 MA165TA
D831 MA165TA
D833 MA165TA
Q812
UN411FTA
LED DRIVE
R872 120
R870 2.7K
R871 82
Q811
2SC3311AIQST
LED DRIVE
D807
SPR-305MDTF
(TUNER)
Q814
2SD2144STA
LED DRIVE
F=4.19MHz
2.1V P-P
X801 (4.19MHz)
R864 220
C862 27P
C861 22P
D810 MA165TA
R841 220K
C810 16V10
R840 100K
C809 0.01
For [EG] area.
For [GC] area.
D812
D811
D814
R875 470
R876 470
R857 330
R856 10K
R865 100K
D803 ISS291TA
D801 ISS291TA
D802 MA165TA
C801 6.3V1000
L801 10μH
C803 0.1
R850 2.2K
R851 2.2K
R853 10K
R855 3.9K
R860 22K
R861 22K
D804 MA165TA
D805 MA165TA
D806 MA165TA
IC802
LA5608M-TE-L
BUS LINE DRIVE/RESET/HALF
B.DATA
B.CLK
B.GND
GND
RESET
CD
HALT
BDATA OUT
B.CLK OUT
B.DATA IN
B.CLK IN
VDD
CA
AC
C851 50V0.33
C852 0.1
Z801
RCDHC-278N
(REMOTE SENSOR)
C807 1000P
R804 100K
R867 22K
C815 0.01
C805 6.3V100
C872 0.01
C811 0.01
C806 0.022
R858 1K
R859 1K
R866 47
R869 47K
R868 47K
C802 1000P
C814 50V1
CN804
/PASS2
MUTE
VRATT1
DATAIN
DATA
CL1
CE1
STB
To C MAIN CIRCUIT (CP804) (Page 16)
CN803
/STEREO
/SD
MICDET
VOLA
VOLB
VRATT2
POWER
SURR
To C MAIN CIRCUIT (CP803) (Page 16)
CN802
PASS1
BDATA
BCLK
BGND
D2
D1
ECHO
/RESET
To C MAIN CIRCUIT (CP802) (Page 16)
CN801
SYNC
KEY
VDD
D.GND
VP
FL2
FL1
+B(3)
To C MAIN CIRCUIT (CP801) (Page 16)
RL & CS1
UD & CS2
LED SET
D2
D1
ECHO
/RESET
/MIC
VSS
XOUT
XIN
/RESET
AC IN
REMOCON
P Q R S T U V
-24.7V
7.4V
5.8V
4.9V
5V

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S801** : Source input select switch (SELECTOR)
- **S802** : KARAOKE mode select switch (KARAOKE)
- **S804** : V.bass switch (V.BASS)
- **S805** : EQ SPACE mode select switch (EQ SPACE)
- **S806** : Flat switch (FLAT)
- **S807** : Auto preset switch (AUTO PRESET)
- **S808** : FM switch (FM)
- **S809** : AM (LW/MW) select switch (LW/MW)
- **S810** : TUNING (▲) switch
- **S811** : TUNING (▼) switch
- **S812** : SELECT (▶) switch
- **S813** : SELECT (◀) switch
- **S814** : SET (●) switch
- **S815** : Clock/timer switch (CLOCK/TIMER)
- **S816** : Record timer switch (⏲ REC)
- **S817** : Play timer switch (⏲ PLAY)
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
- Voltage values and waveforms are measured as indicated in the schematic diagram when test points between TP901 and TP902, and between TP903 and TP904 are shorted.

  No mark : FM mode ( ) : AM (MW) mode < > : AM (LW) mode

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

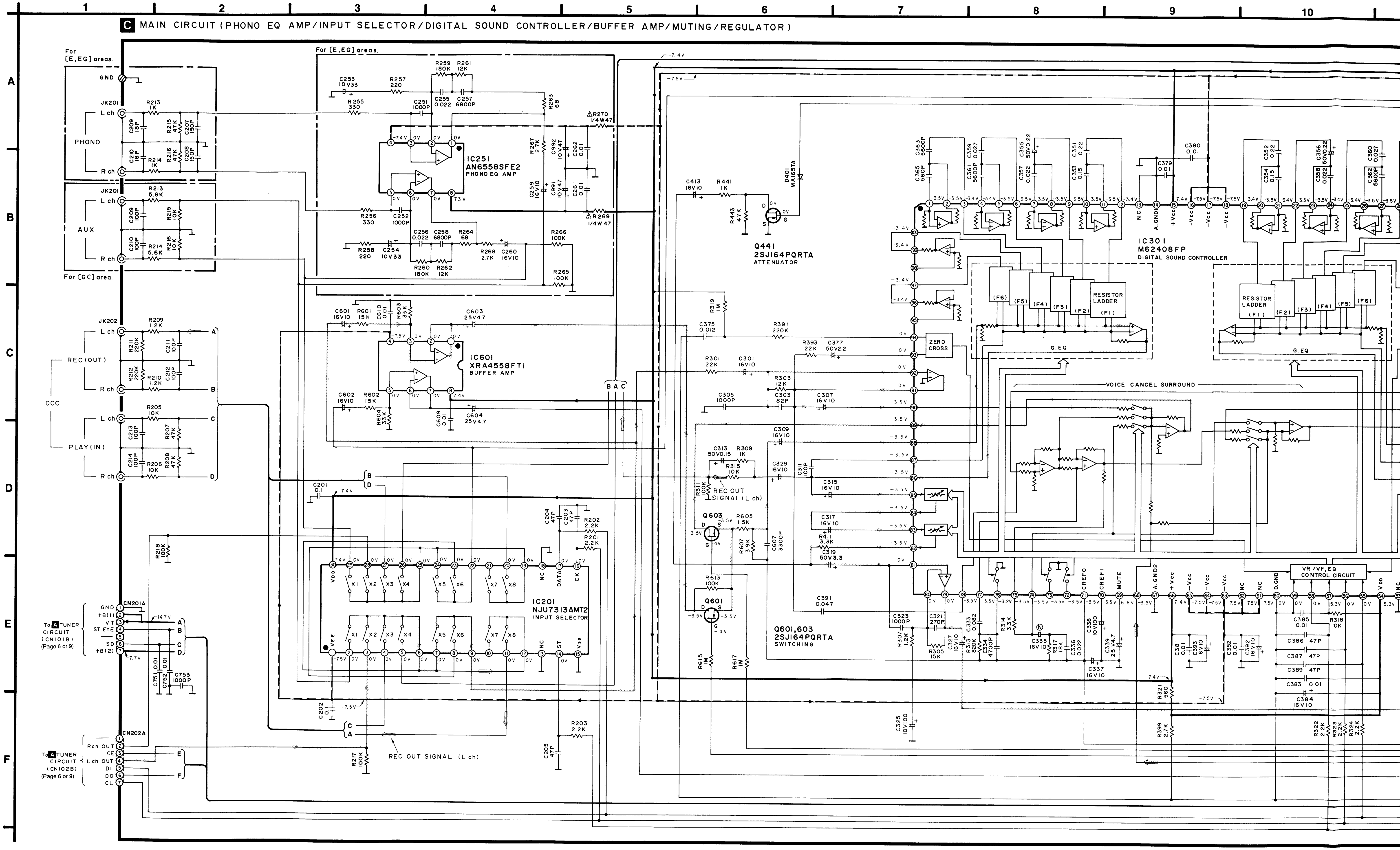
- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

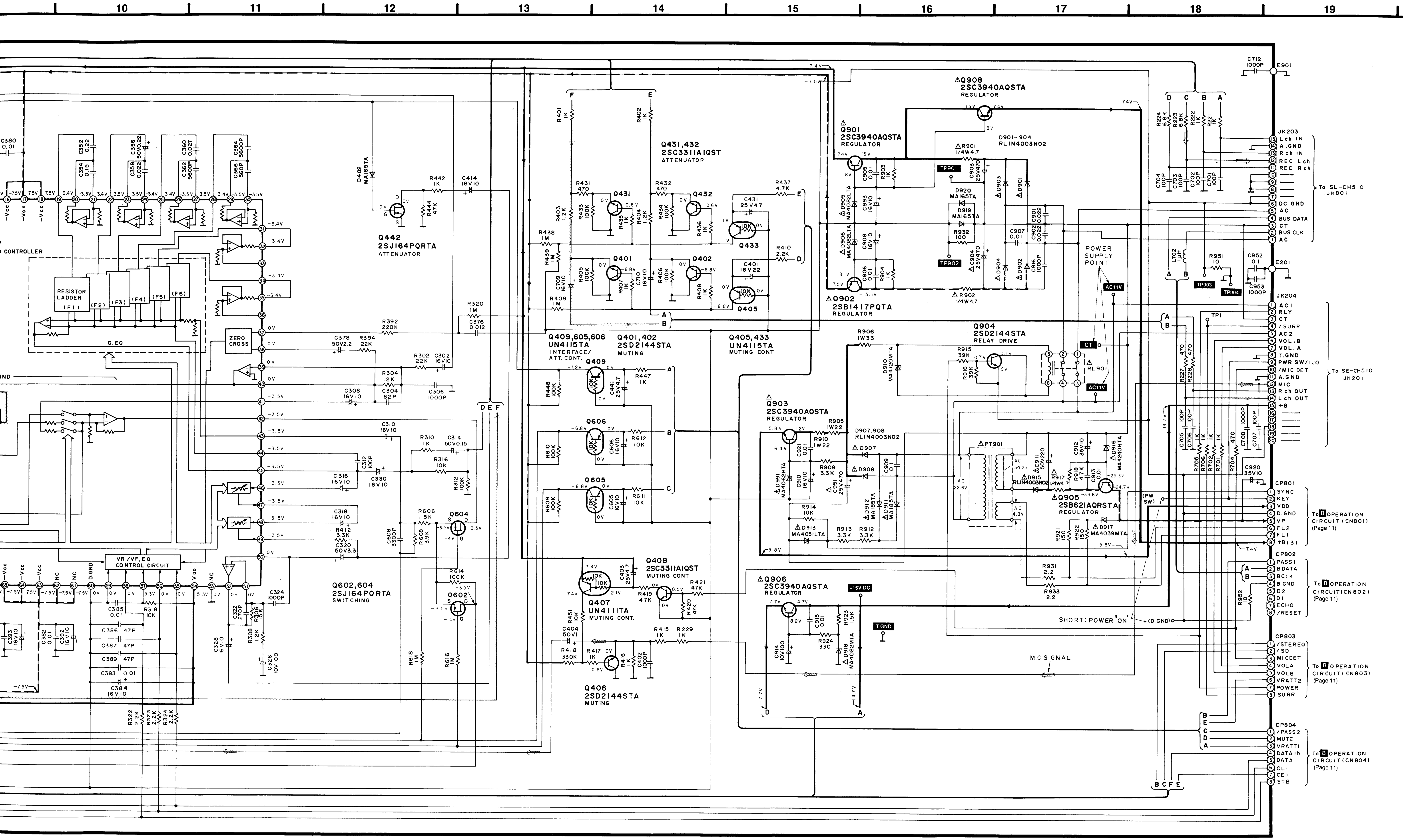
- **Voltage and signal line**

━━▶━━ : Positive voltage line
━ ━ ▶ ━ ━ : Negative voltage line
░░▶░░ : AF signal (Lch) line
▒▒⇨ : REC. OUT signal line
▨▨⇨ : MIC signal line

● Main circuit (Parts list on Page 26~30)

C MAIN CIRCUIT (PHONO EQ AMP/INPUT SELECTOR/DIGITAL SOUND CONTROLLER/BUFFER AMP/MUTING/REGULATOR)

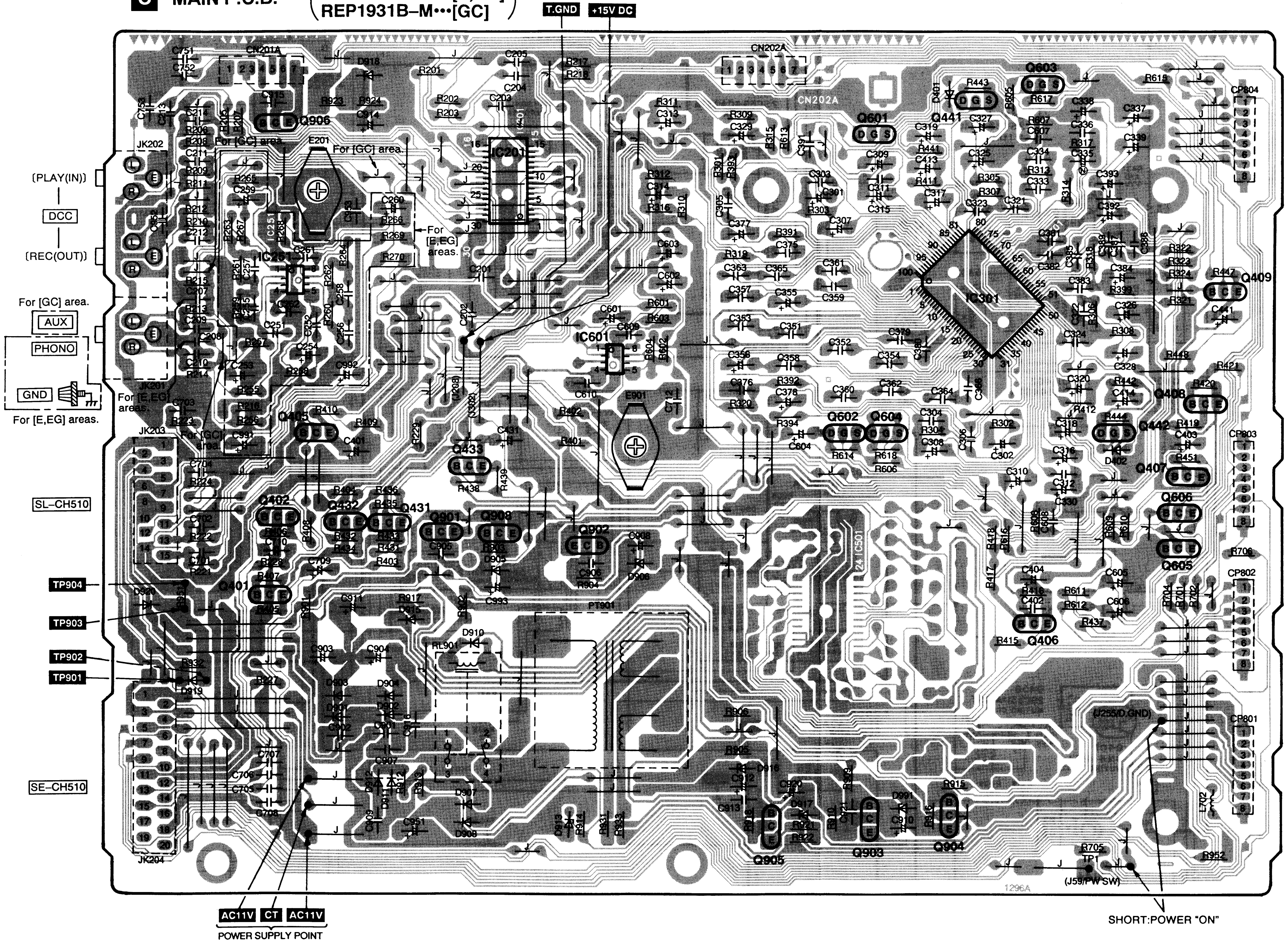

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
For [E, EG] areas.
GND
JK201
L ch
R ch
PHONO
AUX
For [GC] area.
JK202
REC (OUT)
PLAY (IN)
DCC
R213 1K
R214 1K
R213 5.6K
R214 5.6K
R215 47K
R216 47K
C209 18P
C210 18P
C207 150P
C208 150P
R209 1.2K
R210 1.2K
R211 220K
R212 220K
C211 100P
C212 100P
R205 10K
R206 10K
R207 47K
R208 47K
C213 100P
C214 100P
For [E, EG] areas.
R259 180K
R261 12K
C253 10V33
R257 220
R255 330
C251 1000P
C255 0.022
C257 6800P
R263 68
△R270 1/4W47
IC251
AN6558SFE2
PHONO EQ AMP
R267 2.7K
C992 10V47
C262 0.01
C259 16V10
C991 10V47
C261 0.01
△R269 1/4W47
R256 330
C252 1000P
C256 0.022
C258 6800P
R264 68
R266 100K
R258 220
C254 10V33
R260 180K
R262 12K
R268 2.7K
C260 16V10
R265 100K
C601 16V10
R601 15K
C610 0.01
R603 33K
C603 25V4.7
IC601
XRA4558FTI
BUFFER AMP
C602 16V10
R602 15K
R604 33K
C609 0.01
C604 25V4.7
C201 0.1
IC201
NJU7313AMT2
INPUT SELECTOR
C204 47P
C203 47P
R202 2.2K
R201 2.2K
R218 100K
CN201A
To A TUNER CIRCUIT (CN101B) (Page 6 or 9)
GND
+B(1)
VT
ST EYE
SD
+B(2)
C751 0.01
C752 0.01
C753 1000P
C202 0.1
R203 2.2K
C205 47P
R217 100K
REC OUT SIGNAL (L ch)
CN202A
To A TUNER CIRCUIT (CN102B) (Page 6 or 9)
Rch OUT
CE
L ch OUT
DI
DO
CL
C413 16V10
R441 1K
D401 MA165TA
R443 47K
Q441
2SJ164PQRTA
ATTENUATOR
R319 1M
C375 0.012
R391 220K
R393 22K
C377 50V2.2
R301 22K
C301 16V10
R303 12K
C303 82P
C305 1000P
C307 16V10
C309 16V10
C313 50V0.15
R309 1K
R315 10K
C329 16V10
C311 100P
C315 16V10
R311 100K
REC OUT SIGNAL (L ch)
Q603
R605 1.5K
R607 3.9K
C607 3300P
C317 16V10
R411 3.3K
C319 50V3.3
R613 100K
Q601
Q601, 603
2SJ164PQRTA
SWITCHING
R615 1M
R617 1M
C391 0.047
C323 1000P
C321 270P
R307 1.2K
R305 15K
C327 16V10
C333 0.082
R313 820K
C334 4700P
R314 3.3K
C335 16V10
R317 18K
C336 0.022
C338 10V100
C339 25V4.7
C337 16V10
C325 10V100
ZERO CROSS
IC301
M62408FP
DIGITAL SOUND CONTROLLER
RESISTOR LADDER
G.EQ
VOICE CANCEL SURROUND
VR/VF,EQ CONTROL CIRCUIT
C363 5600P
C365 560P
C359 0.027
C361 5600P
C355 50V0.22
C357 0.022
C351 0.22
C353 0.15
C380 0.01
C379 0.01
C352 0.22
C354 0.15
C356 50V0.22
C358 0.022
C360 0.027
C362 5600P
NC
A.GND1
+Vcc
-Vcc
CREFO
CREFI
MUTE
A.GND2
D.GND
Vdd
C381 0.01
C393 16V10
C382 0.01
C392 16V10
C385 0.01
R318 10K
C386 47P
C387 47P
C389 47P
C383 0.01
C384 16V10
R321 560
R399 2.7K
R322 2.2K
R323 2.2K
R324 2.2K
-7.4V
-7.5V
7.4V


10
11
12
13
14
15
16
17
18
19
C380 0.01
C352 0.22
C354 0.15
C356 50V0.22
C358 0.022
C360 0.027
C362 5600P
C364 5600P
C366 560P
D CONTROLLER
RESISTOR LADDER (F1)
(F2)
(F3)
(F4)
(F5)
(F6)
G.EQ
ZERO CROSS
VR/VF,EQ CONTROL CIRCUIT
D402 MA165TA
Q442 2SJ164PQRTA ATTENUATOR
R442 1K
R444 47K
C414 16V10
R392 220K
C378 50V2.2
R394 22K
R320 1M
C376 0.012
R302 22K
C302 16V10
R304 12K
C304 82P
C308 16V10
C306 1000P
C310 16V10
R310 1K
C314 50V0.15
C312 100P
R316 10K
C316 16V10
C330 16V10
R312 100K
C318 16V10
R412 3.3K
C320 50V3.3
R606 1.5K
C608 3300P
R608 39K
Q604
R614 100K
Q602
Q602,604 2SJ164PQRTA SWITCHING
R618 1M
R616 1M
C324 1000P
C322 27P
R306 1.5K
R308 1.2K
C326 10V100
C328 16V10
C385 0.01
R318 10K
C386 47P
C387 47P
C389 47P
C383 0.01
C384 16V10
C382 0.01
C392 16V10
C393
R322 2.2K
R323 2.2K
R324 2.2K
D E F
F
E
R401 1K
R402 1K
Q431,432 2SC3311AIQST ATTENUATOR
R431 470
Q431
R432 470
Q432
R433 100K
R435 1K
R404 1.2K
R434 100K
R436 1K
R437 4.7K
C431 25V4.7
Q433
R410 2.2K
C401 16V22
Q405
R438 1M
R439 1M
R403 2.2K
Q401
Q402
R405 100K
R407 1K
C709 16V10
C710 16V10
R406 100K
R408 1K
R409 1M
A
B
Q409,605,606 UN4115TA INTERFACE/ ATT. CONT.
Q401,402 2SD2144STA MUTING
Q405,433 UN4115TA MUTING CONT
Q409
R448 100K
C441 25V4.7
R447 1K
Q606
R610 100K
C606 16V10
R612 10K
Q605
R609 100K
C605 16V10
R611 10K
C
Q407 UN4111TA MUTING CONT.
C403 25V4.7
Q408 2SC3311AIQST MUTING CONT
R419 4.7K
R421 47K
R420 47K
R451 10K
C404 50V1
R418 330K
R417 1K
R416 1K
C402 100P
R415 1K
R229 1K
Q406 2SD2144STA MUTING
△Q908 2SC3940AQSTA REGULATOR
△Q901 2SC3940AQSTA REGULATOR
D901-904 RLIN4003N02
△R901 1/4W4.7
TP901
C905 0.01
R903 1K
C903 25V470
△D903
△D901
D920 MA165TA
D919 MA165TA
R932 100
△D905 MA4082LTA
C993 16V10
△D906 MA4082LTA
C908 16V10
C907 0.01
C901 0.022
C902 0.022
C916 1000P
TP902
C904 25V470
△D904
△D902
C906 0.01
R904 1K
△Q902 2SB1417PQTA REGULATOR
△R902 1/4W4.7
POWER SUPPLY POINT
AC11V
CT
RL901
AC11V
R906 1W33
Q904 2SD2144STA RELAY DRIVE
R915 39K
R916 39K
D910 MA4120MTA
△Q903 2SC3940AQSTA REGULATOR
R905 1W22
R910 1W22
D907,908 RLIN4003N02
△D907
△D908
C921 0.01
R909 3.3K
C909 0.1
△PT901
△C911 50V220
C912 35V10
△D916 MA4240HTA
△D915 RLIN4003N02
△R917 1/4W4.7
R918 4.7K
C913 0.01
△Q905 2SB621AQRSTA REGULATOR
△D991 MA4062HTA
C910 16V10
△C951 25V470
R914 10K
△D913 MA4051LTA
△D912 MA185TA
△D911 MA185TA
R913 3.3K
R912 3.3K
R921 150
R922 150
△D917 MA4039MTA
R931 2.2
R933 2.2
△Q906 2SC3940AQSTA REGULATOR
+15V DC
C915 0.01
R923 1.5K
R924 330
T.GND
C914 10V100
△D918 MA4082MTA
SHORT: POWER "ON"
(D.GND)
MIC SIGNAL
(PW SW)
C712 1000P
E901
D C B A
R224 6.8K
R223 6.8K
R222 1K
R221 1K
JK203
Lch IN
A.GND
Rch IN
REC Lch
REC Rch
DC GND
AC
BUS DATA
CT
BUS CLK
AC
To SL-CH510 : JK801
C704 100P
C703 100P
C702 100P
C701 100P
L702 1μH
R951 10
C952 0.1
C953 1000P
E201
TP903
TP904
JK204
AC1
RLY
CT
/SURR
AC2
VOL.B
VOL.A
T.GND
PWR SW/IJO
/MIC DET
A.GND
MIC
Rch OUT
Lch OUT
+B
To SE-CH510 : JK201
TP1
R227 470
R228 470
C705 100P
C706 100P
C708 1000P
C707 100P
R705
R706
R702
R701
R704 470
C920 35V10
CP801
SYNC
KEY
VDD
D.GND
VP
FL2
FL1
+B(3)
To B OPERATION CIRCUIT (CN801) (Page 11)
CP802
PASS1
BDATA
BCLK
B GND
D2
D1
ECHO
/RESET
To B OPERATION CIRCUIT (CN802) (Page 11)
R952 10
CP803
/STEREO
/SD
MICDET
VOLA
VOLB
VRATT2
POWER
SURR
To B OPERATION CIRCUIT (CN803) (Page 11)
CP804
/PASS2
MUTE
VRATT1
DATA IN
DATA
CL1
CE1
STB
To B OPERATION CIRCUIT (CN804) (Page 11)
B C F E

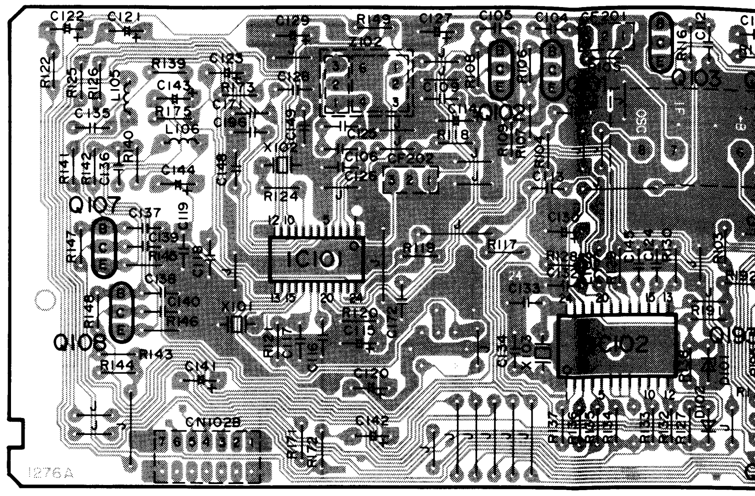
Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

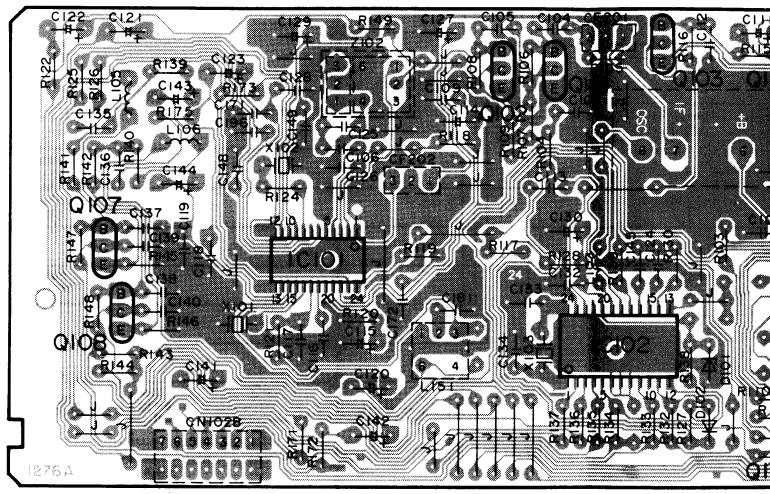
C MAIN P.C.B. (REP1931A–M···[E,EG] REP1931B–M···[GC])


T.GND
+15V DC
CN201A
CN202A
JK202
(PLAY(IN))
DCC
(REC(OUT))
For [GC] area.
AUX
PHONO
GND
For [E,EG] areas.
SL-CH510
SE-CH510
TP904
TP903
TP902
TP901
JK201
JK203
JK204
E201
E901
IC201
IC251
IC301
IC601
PT901
RL901
Q401
Q402
Q405
Q406
Q407
Q408
Q409
Q431
Q432
Q433
Q441
Q442
Q601
Q602
Q603
Q604
Q605
Q606
Q901
Q902
Q903
Q904
Q905
Q906
Q908
CP801
CP802
CP803
CP804
For [GC] area
For [E,EG] areas
(J255/D.GND)
(J59/PW SW)
TP1
1296A
AC11V
CT
AC11V
POWER SUPPLY POINT
SHORT:POWER "ON"

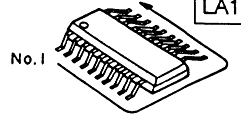
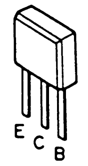
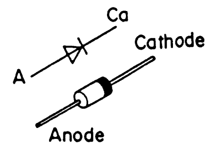
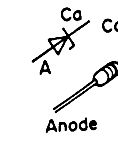
A TUNER P.C.B. For [E,GC] areas.(REP1930A–T)


IC101
IC102
Q103
Q107
Q108
CN102B
1276A

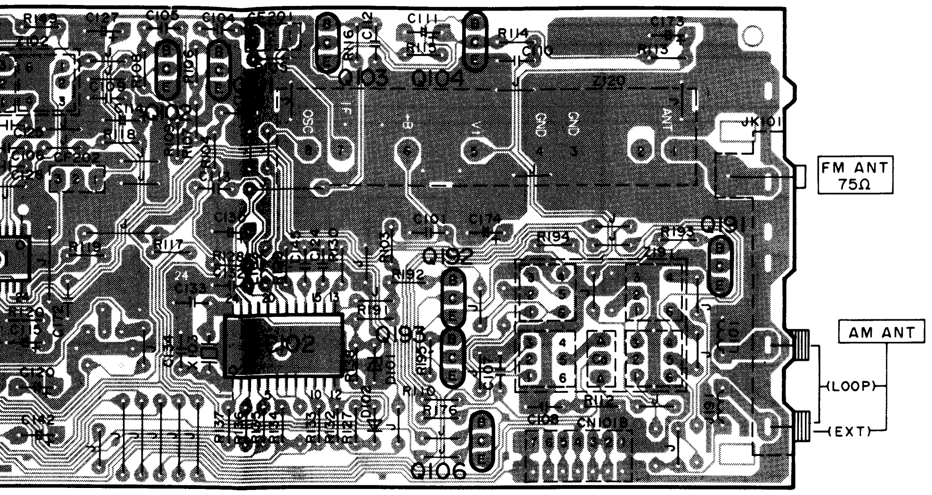
A TUNER P.C.B. For [EG] area.(REP1930B–T)


IC101
IC102
Q103
Q107
Q108
CN102B
1276A

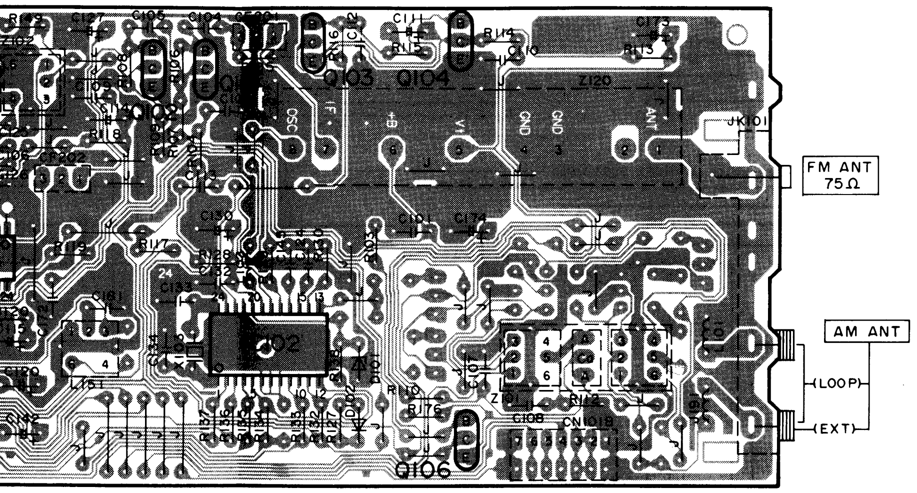
- Terminal Guide of IC's, Tra

 No. 1	AN6558SFE2 LA5608M-TE-L LA1832MH-TEL
 E C B	UN411FTA UN4111 UN4115 UN421FTA 2SC2785FE 2SC2787L 2SC3311ARSTA 2SC3311AIQST
RL1N4003N02  Ca Cathode A Anode	 Ca Ca A Anode

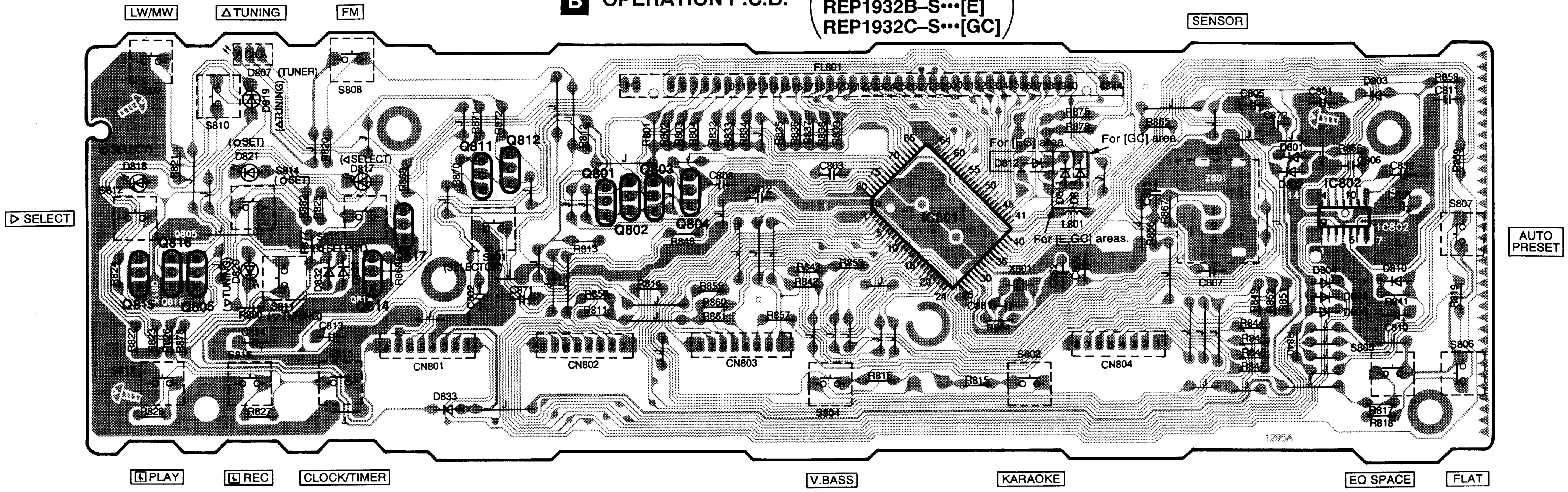
GC] areas.(REP1930A–T)


Q103
Q104
Z120
JK101
FM ANT 75Ω
AM ANT
(LOOP)
(EXT)
IC102
Q191
Q192
Q193
Q106
CN101B

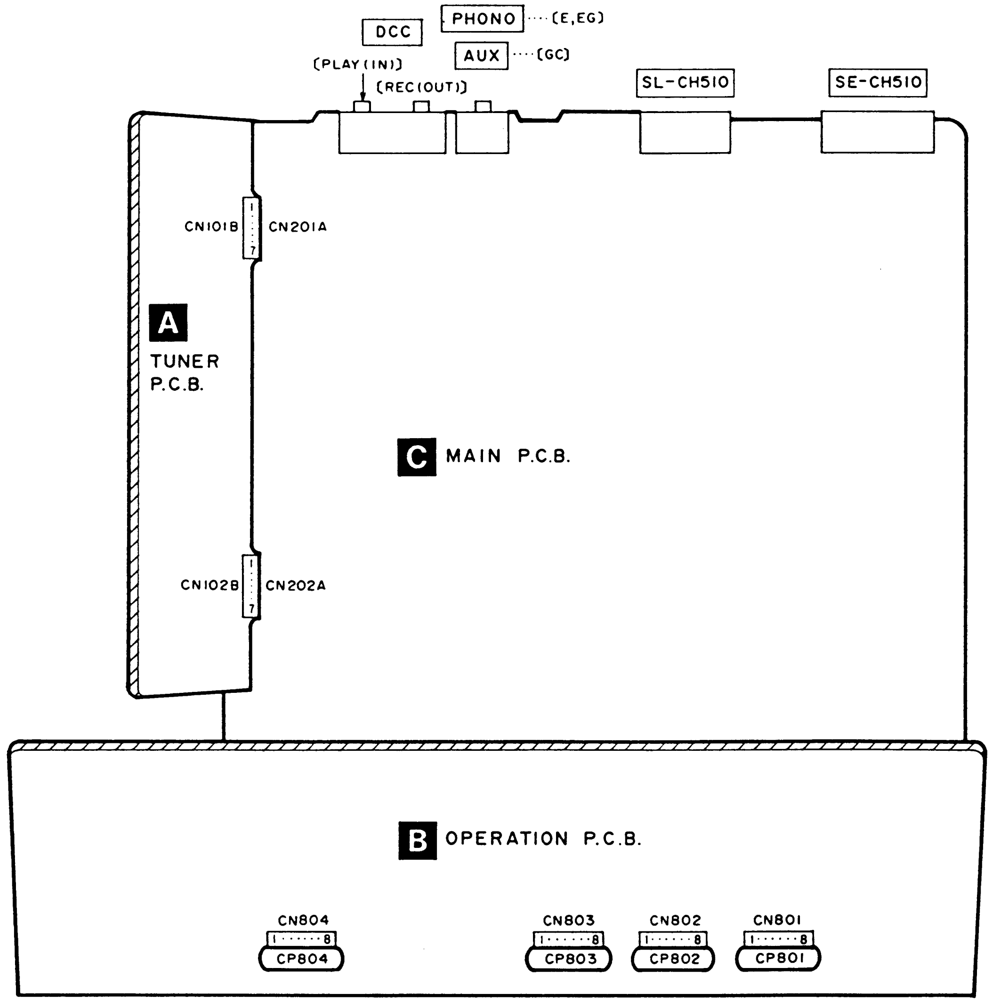
] area.(REP1930B–T)


Q103
Q104
Z120
JK101
FM ANT 75Ω
AM ANT
(LOOP)
(EXT)
IC102
Q106
CN101B

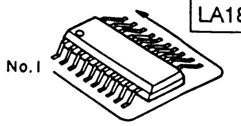
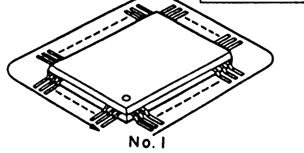
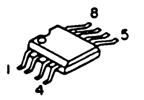
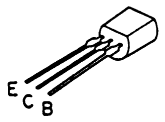
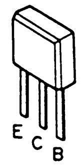
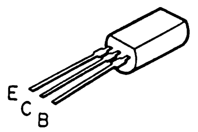
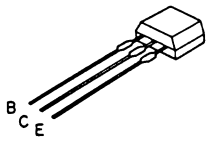
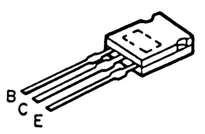
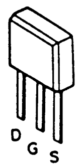
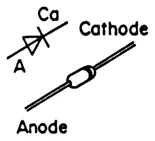
B OPERATION P.C.B. (REP1932A–S•••[EG]
REP1932B–S•••[E]
REP1932C–S•••[GC])


LW/MW
ΔTUNING
FM
SENSOR
▷ SELECT
AUTO PRESET
FL801
IC801
IC802
For [EG] area.
For [GC] area.
For [E,GC] areas.
Q801
Q802
Q803
Q804
Q805
Q811
Q812
Q815
Q816
CN801
CN802
CN803
CN804
S804
S802
S806
S807
S808
S810
S812
S817
D833
PLAY
REC
CLOCK/TIMER
V.BASS
KARAOKE
EQ SPACE
FLAT

■ Wiring Connection Diagram


DCC
PHONO ····(E,EG)
AUX ····(GC)
(PLAY(IN))
(REC(OUT))
SL-CH510
SE-CH510
CN101B
CN201A
A TUNER P.C.B.
C MAIN P.C.B.
CN102B
CN202A
B OPERATION P.C.B.
CN804
CP804
CN803
CP803
CN802
CP802
CN801
CP801

- **Terminal Guide of IC's, Transistors and Diodes**

<table>
<tr><td colspan="3">AN6558SFE2 8Pin
LC7218M-TE-L 24Pin
LA5608M-TE-L 14Pin
NJU7313AMT2 30Pin
LA1832MH-TEL 24Pin
 </td><td colspan="2">M38173M6277F 80Pin
M62408FP 100Pin
 </td><td>XRA4558FT1
 </td><td>2SB621A-R
 </td></tr>
<tr><td colspan="2">UN411FTA
UN4111
UN4115
UN421FTA
2SC2785FE
2SC2787L
2SC3311ARSTA
2SC3311AIQST
 </td><td>2SC3940AQSTA
 </td><td>2SD2144S
 </td><td>2SB1417PQTA
 </td><td>2SJ164PQRTA
 </td><td>MA165


Ca
Cathode
A
Anode

</td></tr>
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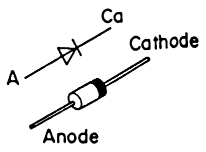
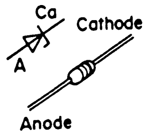
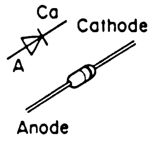


Ca
Cathode
A
Anode

</td><td colspan="2">MA4039MTA
MA4051MTA
MA4051-L
MA4062-H
MA4082MTA
MA4082LTA


Ca
Cathode
A
Anode

</td><td>1SS291TA
MA185TA


Ca
Cathode
A
Anode

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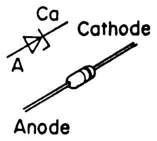
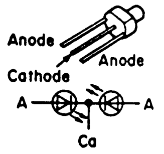
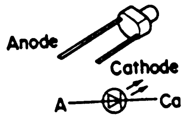
MA4240H


Ca
Cathode
A
Anode

</td><td>SPR-305MDTF


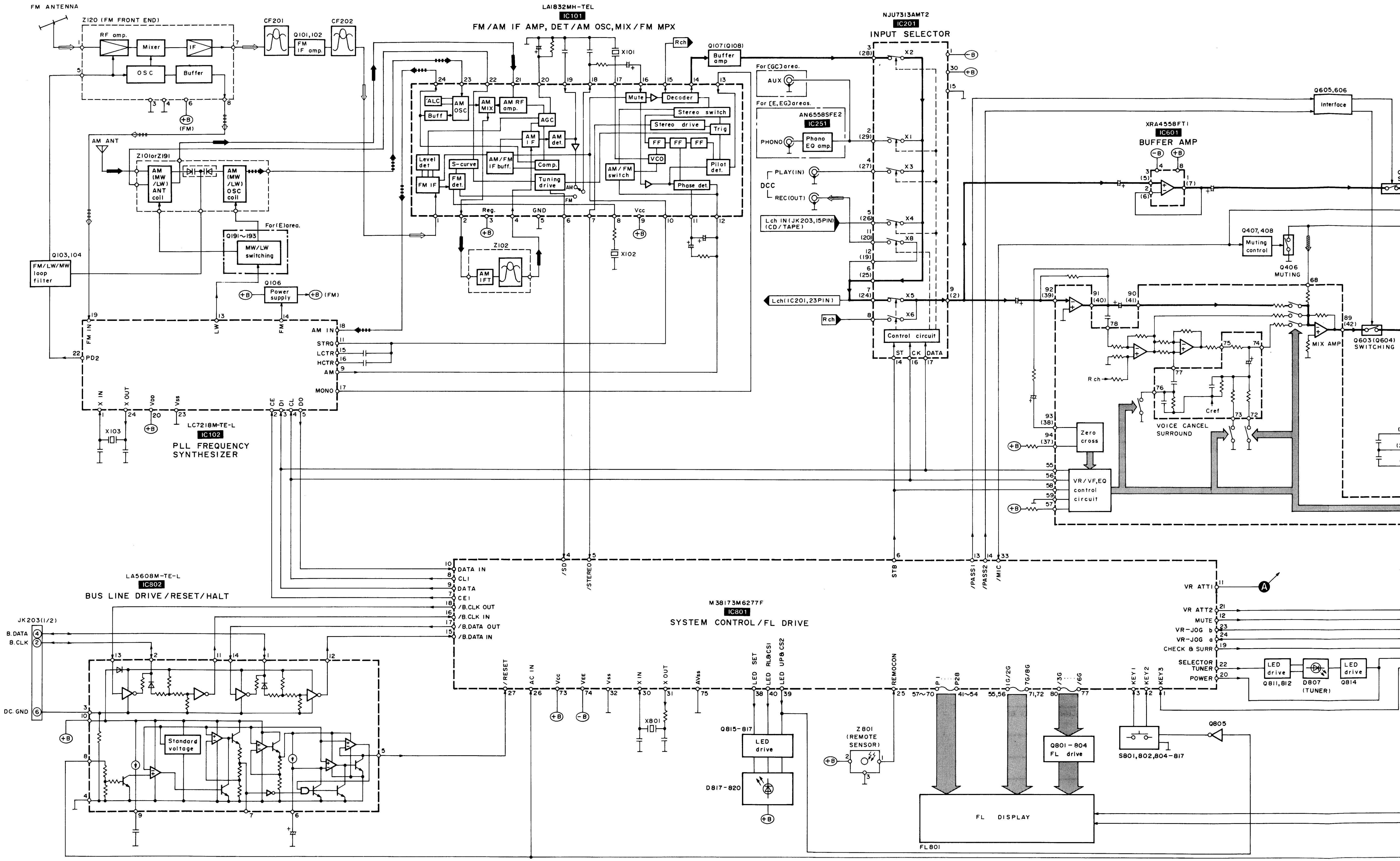
Anode
Anode
Cathode
A
A
Ca

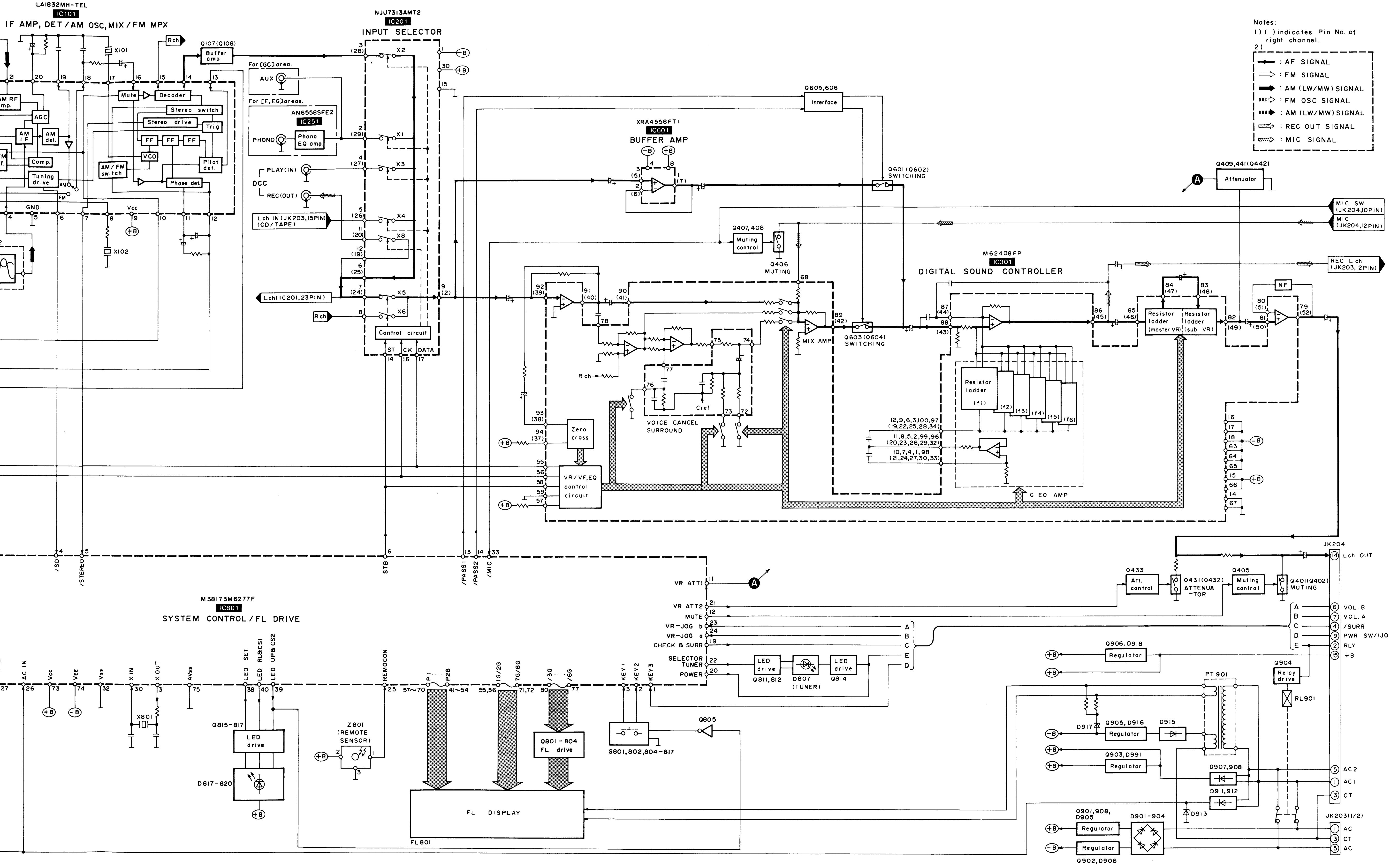
</td><td>SLR-305MC
SLR-305VC


Anode
Cathode
A
Ca

</td></tr>
</table>

■ Block Diagram


FM ANTENNA
Z120 (FM FRONT END)
RF amp.
Mixer
IF
OSC
Buffer
CF201
Q101,102
FM IF amp.
CF202
LA1832MH-TEL
IC101
FM/AM IF AMP, DET/AM OSC,MIX/FM MPX
ALC
Buff
AM OSC
AM MIX
AM RF amp.
AGC
AM IF
AM det.
Level det
FM IF
S-curve
FM det.
AM/FM IF buff.
Comp.
Tuning drive
Mute
Decoder
Stereo switch
Stereo drive
Trig
FF
VCO
Pilot det.
AM/FM switch
Phase det.
Reg.
GND
Vcc
X101
X102
Z102
AM IFT
Rch
Q107(Q108)
Buffer amp
AM ANT
Z101orZ191
AM (MW/LW) ANT coil
AM (MW/LW) OSC coil
For(E)area.
Q191~193
MW/LW switching
Q103,104
FM/LW/MW loop filter
Q106
Power supply
(FM)
LC7218M-TE-L
IC102
PLL FREQUENCY SYNTHESIZER
FM IN
PD2
LW
FM
AM IN
STRQ
LCTR
HCTR
AM
MONO
X IN
X OUT
VDD
Vss
CE
DI
CL
DO
X103
NJU7313AMT2
IC201
INPUT SELECTOR
For(GC)area.
AUX
For(E,EG)areas.
AN6558SFE2
IC251
PHONO
Phono EQ amp.
PLAY(IN)
DCC
REC(OUT)
Lch IN (JK203,15PIN) (CD/TAPE)
Lch(IC201,23PIN)
Rch
Control circuit
ST
CK
DATA
Q605,606
Interface
XRA4558FT1
IC601
BUFFER AMP
Q407,408
Muting control
Q406
MUTING
MIX AMP
Q603(Q604)
SWITCHING
Rch
Cref
VOICE CANCEL
SURROUND
Zero cross
VR/VF,EQ control circuit
LA5608M-TE-L
IC802
BUS LINE DRIVE/RESET/HALT
JK203(1/2)
B.DATA
B.CLK
DC.GND
Standard voltage
DATA IN
CLI
DATA
CEI
/B.CLK OUT
/B.CLK IN
/B.DATA OUT
/B.DATA IN
/SD
/STEREO
STB
/PASS1
/PASS2
/MIC
M38173M6277F
IC801
SYSTEM CONTROL/FL DRIVE
/RESET
AC IN
Vcc
VEE
Vss
X IN
X OUT
AVss
X801
LED SET
LED RL&CS1
LED UP&CS2
REMOCON
P1~P28
1G/2G~7G/8G
/3G~/6G
KEY1
KEY2
KEY3
VR ATT1
VR ATT2
MUTE
VR-JOG b
VR-JOG a
CHECK & SURR
SELECTOR TUNER
POWER
Q815-817
LED drive
D817-820
Z801
(REMOTE SENSOR)
Q801-804
FL drive
FL DISPLAY
FL801
S801,802,804-817
Q805
LED drive
Q811,812
D807
(TUNER)
Q814
A


LA1832MH-TEL
IC101
IF AMP, DET/AM OSC, MIX/FM MPX
AM RF amp.
AGC
AM IF
AM det.
Comp.
Tuning drive
AM/FM switch
Mute
Decoder
Stereo switch
Stereo drive
Trig
FF
VCO
Pilot det.
Phase det.
GND
Vcc
X101
X102
Rch
Q107(Q108)
Buffer amp
NJU7313AMT2
IC201
INPUT SELECTOR
For [GC] area.
AUX
For [E, EG] areas.
AN6558SFE2
IC251
PHONO
Phono EQ amp.
PLAY(IN)
DCC
REC(OUT)
Lch IN (JK203,15PIN) (CD/TAPE)
Lch(IC201,23PIN)
Control circuit
ST CK DATA
Q605,606
Interface
XRA4558FT1
IC601
BUFFER AMP
Q601(Q602) SWITCHING
Q407,408
Muting control
Q406 MUTING
M62408FP
IC301
DIGITAL SOUND CONTROLLER
Zero cross
VR/VF,EQ control circuit
VOICE CANCEL SURROUND
Cref
MIX AMP
Q603(Q604) SWITCHING
Resistor ladder (f1)
(f2) (f3) (f4) (f5) (f6)
G EQ AMP
Resistor ladder (master VR)
Resistor ladder (sub VR)
NF
Q409,441(Q442)
Attenuator
MIC SW (JK204,10PIN)
MIC (JK204,12PIN)
REC Lch (JK203,12PIN)
Notes:
1) ( ) indicates Pin No. of right channel.
2)
: AF SIGNAL
: FM SIGNAL
: AM (LW/MW) SIGNAL
: FM OSC SIGNAL
: AM (LW/MW) SIGNAL
: REC OUT SIGNAL
: MIC SIGNAL
/SD
/STEREO
STB
/PASS1
/PASS2
/MIC
M38173M6277F
IC801
SYSTEM CONTROL/FL DRIVE
VR ATT1
VR ATT2
MUTE
VR-JOG b
VR-JOG a
CHECK & SURR
SELECTOR TUNER
POWER
LED drive
D807 (TUNER)
Q811,812
Q814
AC IN
Vcc
VEE
Vss
X IN
X OUT
AVss
X801
LED SET
LED RL&CS1
LED UP&CS2
Q815-817
LED drive
D817-820
REMOCON
Z801 (REMOTE SENSOR)
P1 P28
1G/2G
7G/8G
/3G /6G
Q801-804 FL drive
FL DISPLAY
FL801
KEY1 KEY2 KEY3
S801,802,804-817
Q805
JK204
Lch OUT
Q433
Att. control
Q431(Q432) ATTENUATOR
Q405
Muting control
Q401(Q402) MUTING
VOL. B
VOL. A
/SURR
PWR SW/1J0
RLY
+B
Q906,D918
Regulator
Q904
Relay drive
RL901
PT901
D917
Q905,D916
D915
Q903,D991
D907,908
D911,912
D913
AC2
AC1
CT
Q901,908, D905
D901-904
Q902,D906
JK203(1/2)
AC
CT
AC

■ Power Supply with Tuner ST-CH510

This unit ST-CH510 is designed to operate on power supplied from the Amplifier SE-CH510.
When operating the unit ST-CH510 alone for testing and servicing, without having power supplied from the Amplifier SE-CH510, use the following method.

Power Supply to Main Circuit

1. Short the section between the test points **TP903** and **TP904** on the resistor **R951** as well as the section between the test points **TP902** (Anode side) and **TP901** (Cathode side) of the diode **D919**.
2. Apply 11 V AC power to the section between the point AC 11 V (**AC**) of the jumper **J224** and the point CT (**CT**) of the jumper **J225** as well as the section between the point AC 11 V (**AC**) of the jumper **J226** and the point CT (**CT**) of the jumper **J225**. (10 V AC power can be also applied when using power supply tool.) This unit comes to stand-by mode.
3. Short the section between the jumper **J59** and the point D.GND of the jumper **J255** for a moment. The main circuit comes to power ON mode. (Whenever this operation is performed, power, ON/OFF mode is repeated.)

Power Supply to Tuner Circuit

1. Apply power source to the main circuit.
2. Connect the DC +15 V terminal to the jumper **J302**, and the GND terminal to both the point T.GND of the jumper **J208** and the point CT (**CT**) of the jumper **J225** using the DC power supply tool.

Note: If the GND terminal of the DC power supply tool is connected to the point CT (**CT**) of the jumper **J225**, an error occurs in measurement values for voltage and waveform.

To Check Signals

Connect the oscilloscope or the speaker with the built-in amplifier to the section between LINE OUT (R-ch) of the capacitor **C706** and the test point **TP904** of the resistor **R951** as well as the section between LINE OUT (L-ch) of the capacitor **C705** and the test point **TP904** of the resistor **R951** and check if the signals are outputting from this unit.

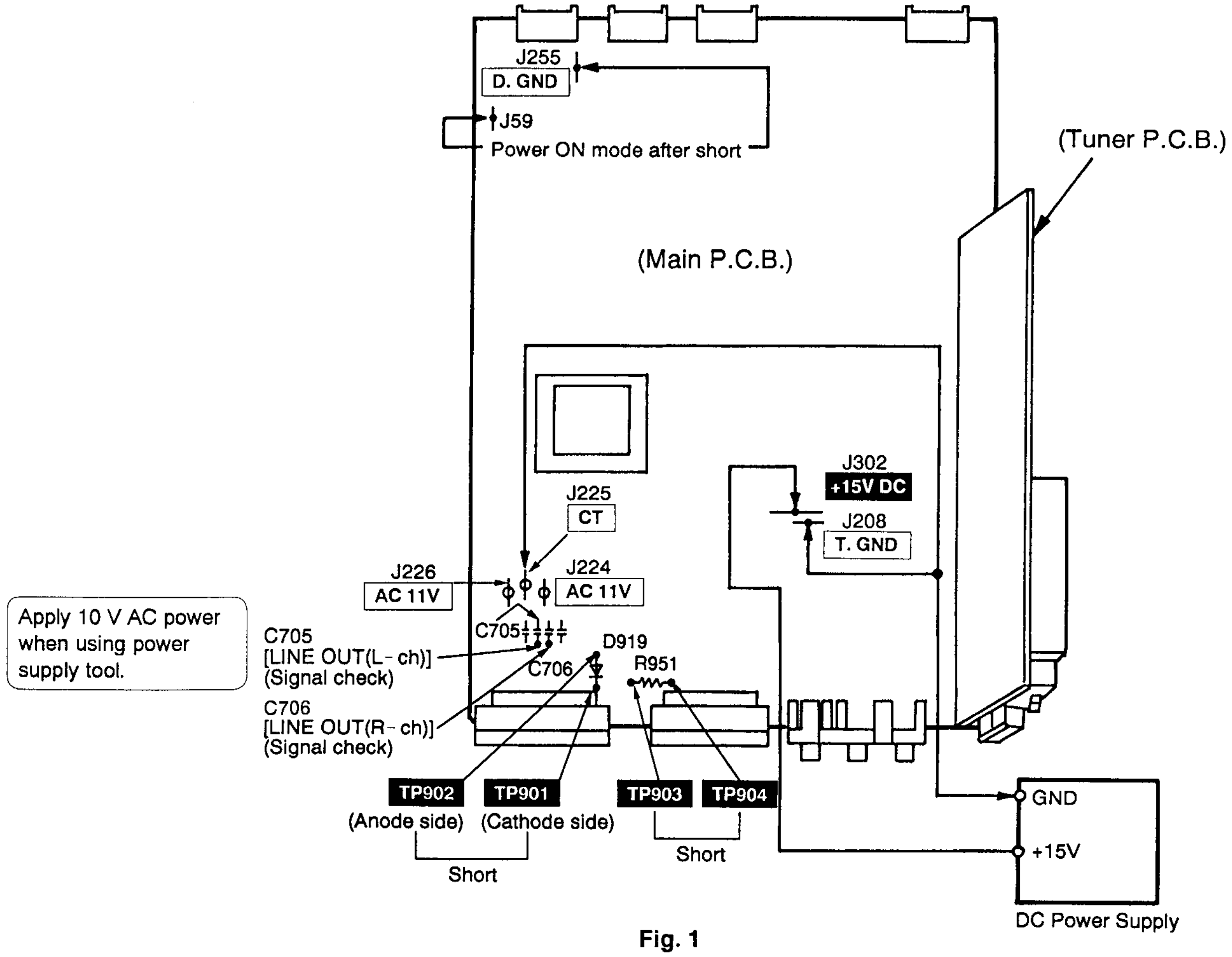


Fig. 1

Note: This unit is not required to adjust.

■ Function of IC Terminals

- **IC801 (M38173M6277F)**

Pin No.	Terminal Name	I/O	Function
1	KEY3	I	Power ON/OFF operation detect signal input
2	KEY2	I	Operation key signal input
3	KEY1	I	Operation key signal input
4	/SD	I	SD signal input for tuner
5	/STEREO	I	STEREO signal input for tuner
6	STB	O	Strobe signal output to IC201 and operation key
7	CE1	O	Chip enable signal output to IC102
8	CL1	O	Clock signal output to IC301, IC201 and IC102
9	DATA	O	Data signal output to IC301, IC201 and IC102
10	DATA IN	I	Data signal input from IC102
11	VR ATT1	O	Attenuator signal (-10 dB) output for main volume
12	MUTE	O	Main muting signal output
13	PASS1	O	Output the ON/OFF control signal for Q606
14	/PASS2	O	Output the ON/OFF control signal for Q605
15	/B.DATA IN	I	Bus data input
16	/B.CLK IN	I	Bus clock input
17	/B.DATA OUT	O	Bus data output
18	/B.CLK OUT	O	Bus clock output
19	SURR & CHECK	O	POWER ON mode: Output for SPACE "ON"/ECHO "ON" POWER OFF mode: Demultiplier output for clock control
20	POWER	I/O	Power control output (During POWER ON: "H")
21	VR ATT2	O	Attenuator signal (-10 dB) output for main volume
22	SELECTOR TUNER	O	Selector TUNER output
23	VR JOG B	I	Rotary encoder input for main volume
24	VR JOG A		
25	REMOCON	I	Input for remote control
26	AC IN	I	AC power source input terminal for an electricity failure
27	/RESET	I	Reset input terminal
28	XCIN	—	Connect to GND
29	XCOUT	—	Unused, open
30	XIN	I	Connected to a oscillator for system clock X801 (4.194304 MHz)
31	XOUT	O	
32	VSS	—	Connected to GND

Pin No.	Terminal Name	I/O	Function
33	/MIC	I	Input for MIC detection (Connection: "L")
34	CR TIMER	I/O	CR timer (Back up signal detect for clock)
35	ECHO	O	Output for ECHO "ON"
36	D1	O	Output for echo level set
37	D2		
38	LED SET	O	LED drive signal (SET)
39	LED UD & CS2	O	LED drive signal (TUNING)
		I	Input for chip select signal
40	LED RL & CS1	O	LED drive signal (PRESET or SELECT)
		I	Input for chip select signal
41 ~ 44	P28 ~ P25	O	Segment output for FL display and chip select signal output
45 ~ 54	P24 ~ P15	O	Segment output for FL display
55	1G	O	Grid output for FL display
56	2G		
57 ~ 70	P14 ~ P1	O	Segment output for FL display
71	8G	O	Grid output for FL display
72	7G		
73	VCC	I	Supplied (+5V)
74	VEE	I	Supplied power to FL display for pulling down
75	AVSS	—	Connected to GND
76	VREF	—	Standard voltage for A/D convertor (Connected to VCC)
77 ~ 80	/6G ~ /3G	O	Grid output for FL display

■ Rep

Ref. No.
IC101
IC102
IC201
IC251
IC301
IC601
IC801
IC802
Q101, 102
Q103, 104
Q106
Q107, 108
Q191-193
Q401, 402
Q405
Q406
Q407
Q408
Q409
Q431, 432
Q433
Q441, 442
Q601-604
Q605, 606
Q801-804
Q805
Q811
Q812
Q814
Q815-817
Q901
Q902
Q903
Q904
Q905
Q906
Q908

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■ Function of IC Terminals

● IC801 (M38173M6277F)

Pin No.	Terminal Name	I/O	Function
1	KEY3	I	Power ON/OFF operation detect signal input
2	KEY2	I	Operation key signal input
3	KEY1	I	Operation key signal input
4	/SD	I	SD signal input for tuner
5	/STEREO	I	STEREO signal input for tuner
6	STB	O	Strobe signal output to IC201 and operation key
7	CE1	O	Chip enable signal output to IC102
8	CL1	O	Clock signal output to IC301, IC201 and IC102
9	DATA	O	Data signal output to IC301, IC201 and IC102
10	DATA IN	I	Data signal input from IC102
11	VR ATT1	O	Attenuator signal (-10 dB) output for main volume
12	MUTE	O	Main muting signal output
13	PASS1	O	Output the ON/OFF control signal for Q606
14	/PASS2	O	Output the ON/OFF control signal for Q605
15	/B.DATA IN	I	Bus data input
16	/B.CLK IN	I	Bus clock input
17	/B.DATA OUT	O	Bus data output
18	/B.CLK OUT	O	Bus clock output
19	SURR & CHECK	O	POWER ON mode: Output for SPACE "ON"/ECHO "ON" POWER OFF mode: Demultiplier output for clock control
20	POWER	I/O	Power control output (During POWER ON: "H")
21	VR ATT2	O	Attenuator signal (-10 dB) output for main volume
22	SELECTOR TUNER	O	Selector TUNER output
23	VR JOG B	I	Rotary encoder input for main volume
24	VR JOG A		
25	REMOCON	I	Input for remote control
26	AC IN	I	AC power source input terminal for an electricity failure
27	/RESET	I	Reset input terminal
28	XCIN	—	Connect to GND
29	XCOUT	—	Unused, open
30	XIN	I	Connected to a oscillator for system clock X801 (4.194304 MHz)
31	XOUT	O	
32	VSS	—	Connected to GND
33	/MIC	I	Input for MIC detection (Connection: "L")
34	CR TIMER	I/O	CR timer (Back up signal detect for clock)
35	ECHO	O	Output for ECHO "ON"
36	D1	O	Output for echo level set
37	D2		
38	LED SET	O	LED drive signal (SET)
39	LED UD & CS2	O	LED drive signal (TUNING)
		I	Input for chip select signal
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		I	Input for chip select signal
41 ~ 44	P28 ~ P25	O	Segment output for FL display and chip select signal output
45 ~ 54	P24 ~ P15	O	Segment output for FL display
55	1G	O	Grid output for FL display
56	2G		
57 ~ 70	P14 ~ P1	O	Segment output for FL display
71	8G	O	Grid output for FL display
72	7G		
73	VCC	I	Supplied (+5V)
74	VEE	I	Supplied power to FL display for pulling down
75	AVSS	—	Connected to GND
76	VREF	—	Standard voltage for A/D convertor (Connected to VCC)
77 ~ 80	/6G ~ /3G	O	Grid output for FL display

■ Replacement Parts List

Notes: •Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
•The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
•The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	LA1832MH-TEL	I. C, FM/AM IF AMP.	
IC102	LC7218M-TE-L	I. C, PLL FREQ. SYNTHESIZER	
IC201	NJU7313AMT2	I. C, INPUT SELECTOR	
IC251	AN6558SFE2	I. C, PHONO EQ AMP	(E, EG)
IC301	M62408FP	I. C, DIGITAL SOUND CONT.	
IC601	XRA4558FT1	I. C, BUFFER AMP.	
IC801	M38173M6277F	I. C, SYSTEM CONT. /FL DRIVE	
IC802	LA5608M-TE-L	I. C, BUS LINE/HALF/RESET	
		TRANSISTOR(S)	
Q101, 102	2SC2787L	TRANSISTOR	
Q103, 104	2SC2785FE	TRANSISTOR	
Q106	UN411FTA	TRANSISTOR	
Q107, 108	2SC3311ARSTA	TRANSISTOR	
Q191-193	2SC3311ARSTA	TRANSISTOR	(E, GC)
Q401, 402	2SD2144S	TRANSISTOR	
Q405	UN4115	TRANSISTOR	
Q406	2SD2144S	TRANSISTOR	
Q407	UN4111	TRANSISTOR	
Q408	2SC3311AIQST	TRANSISTOR	
Q409	UN4115	TRANSISTOR	
Q431, 432	2SC3311AIQST	TRANSISTOR	
Q433	UN4115	TRANSISTOR	
Q441, 442	2SJ164PQRTA	TRANSISTOR	
Q601-604	2SJ164PQRTA	TRANSISTOR	
Q605, 606	UN4115	TRANSISTOR	
Q801-804	UN4111	TRANSISTOR	
Q805	UN421FTA	TRANSISTOR	
Q811	2SC3311AIQST	TRANSISTOR	
Q812	UN411FTA	TRANSISTOR	
Q814	2SD2144S	TRANSISTOR	
Q815-817	UN421FTA	TRANSISTOR	
Q901	2SC3940AQSTA	TRANSISTOR	⚠
Q902	2SB1417PQTA	TRANSISTOR	⚠
Q903	2SC3940AQSTA	TRANSISTOR	⚠
Q904	2SD2144S	TRANSISTOR	
Q905	2SB621A-R	TRANSISTOR	⚠
Q906	2SC3940AQSTA	TRANSISTOR	⚠
Q908	2SC3940AQSTA	TRANSISTOR	⚠
		DIODE(S)	

Ref. No.	Part No.	Part Name & Description	Remarks
D101	MA4051MTA	DIODE	⚠
D102	MA165	DIODE	
D401, 402	MA165	DIODE	
D801	1SS291TA	DIODE	
D802	MA165	DIODE	
D803	1SS291TA	DIODE	
D804-806	MA165	DIODE	
D807	SPR-305MDTF	LED	
D810	MA165	DIODE	
D811	MA165	DIODE	(E, GC)
D812	MA165	DIODE	(EG)
D814	MA165	DIODE	(GC)
D817-820	SLR-305MC	LED	
D821	SLR-305VC	LED	
D831-833	MA165	DIODE	
D901-904	RL1N4003N02	DIODE	⚠
D905, 906	MA4082LTA	DIODE	⚠
D907, 908	RL1N4003N02	DIODE	⚠
D910	MA4120	DIODE	
D911, 912	MA185TA	DIODE	⚠
D913	MA4051-L	DIODE	⚠
D915	RL1N4003N02	DIODE	⚠
D916	MA4240H	DIODE	⚠
D917	MA4039MTA	DIODE	⚠
D918	MA4082MTA	DIODE	⚠
D919, 920	MA165	DIODE	
D991	MA4062-H	DIODE	⚠
		COMPONENT COMBINATION(S)	
Z101	RLA2Z002M-T	COMPONENT COMBINATION	(EG)
Z102	RLI2Z006M-T	COMPONENT COMBINATION	
Z120	RAL0006	FM FRONT END	(E, GC)
Z120	RAL0019	FM FRONT END	(EG)
Z191	RLA6Z005M-T	COMPONENT COMBINATION	(E, GC)
Z801	RCDHC-278N	REMOTE SENSOR	
		COIL(S)	
L101	ELESNR68MA	COIL	
L103	ELEXTR47MA9	COIL	
L105, 106	ELELN822KL	COIL	
L151	SLM1B10M-1M	COIL	(EG)
L191	ELESNR68MA	COIL	
L702	ELEXT101KA9	COIL	
L801	RLQA100JT-Y	COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
		FILTER(S)	
CF201, 202	RLFFETWND01M	CERAMIC FILTER	(E, GC)
CF201, 202	RLFFETMGD01L	CERAMIC FILTER	(EG)
		OSCILLATOR(S)	
X101	RSXZ456KM07M	OSCILLATOR(456KHz)	
X102	RLFDGTD01I	OSCILLATOR(10. 65MHz)	
X103	RSXC7M20S04T	OSCILLATOR(7. 2MHz)	
X801	RSXA4M19S03	OSCILLATOR(4. 19MHz)	
		DISPLAY TUBE	
FL801	RSL0183-F	DISPLAY TUBE	
		SWITCH(ES)	
S801	EVQ21405R	SW, SELECTOR	
S802	EVQ21405R	SW, KARAOKE	
S804	EVQ21405R	SW, V. BASS	
S805	EVQ21405R	SW, EQ SPACE	
S806	EVQ21405R	SW, FLAT	
S807	EVQ21405R	SW, AUTO PRESET	
S808	EVQ21405R	SW, FM	
S809	EVQ21405R	SW, AM(LW/ME)	
S810	EVQ21405R	SW, TUNING	
S811	EVQ21405R	SW, TUNING	
S812	EVQ21405R	SW, SELECT	
S813	EVQ21405R	SW, SELECT	
S814	EVQ21405R	SW, SET	
S815	EVQ21405R	SW, CLOCK/TIMER	
S816	EVQ21405R	SW, REC	
S817	EVQ21405R	SW, PLAY	
		CONNECTOR(S)	
CN801-804	RJT003K008-1	CONNECTOR(8P)	
CN201A	RJT057W007-1	CONNECTOR(7P)	
CN202A	RJT057W007-1	CONNECTOR(7P)	
CN101B	RJU057W007	SOCKET(7P)	
CN102B	RJU057W007	SOCKET(7P)	
CP801-804	RJU003K008M1	SOCKET(8P)	
		EARTH TERMINAL(S)	
E201	SNE1004-2	GND PLATE	
E901	SNE1004-2	GND PLATE	
		TRANSFORMER	

Ref. No.	Part No.	Part Name & Description	Remarks
PT901	RTP1I4G005-M	POWER TRANSFORMER	⚠
		RELAY	
RL901	RSY0017M-0	RELAY	⚠
		JACK(S)	
JK101	RJH5210M	EXT ANT	
JK201	SJF3068-7N	PHONO	
JK202	SJF3069-5N	DAT/DCC	
JK203	RJT065K15	CONNECTOR(15P)	
JK204	RJT065K20	CONNECTOR(20P)	

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R103	ERDS2TJ271	1/4W 270 (E,GC)
R103	ERDS2TJ330T	1/4W 33 (EG)
R104	ERDS2TJ822	1/4W 8.2K (E,GC)
R104	ERDS2TJ103	1/4W 10K (EG)
R105	ERDS2TJ471	1/4W 470
R106	ERDS2TJ474	1/4W 470K
R107	ERDS2TJ331	1/4W 330
R108	ERDS2TJ474	1/4W 470K
R109	ERDS2TJ331	1/4W 330
R110	ERDS2TJ102	1/4W 1K
R112	ERDS2TJ104	1/4W 100K
R113	ERDS2TJ103	1/4W 10K
R114	ERDS2TJ562	1/4W 5.6K
R115	ERDS2TJ561	1/4W 560
R116	ERDS2TJ102	1/4W 1K
R117	ERDS2TJ273	1/4W 27K (E,GC)
R117	ERDS2TJ823T	1/4W 82K (EG)
R118	ERDS2TJ562	1/4W 5.6K
R119	ERDS2TJ682T	1/4W 6.8K (E,GC)
R119	ERDS2TJ822T	1/4W 8.2K (EG)
R120	ERDS2TJ473	1/4W 47K
R121	ERDS2TJ332	1/4W 3.3K
R122	ERDS2TJ272T	1/4W 2.7K
R124	ERDS2TJ271	1/4W 270
R125, 126	ERDS2TJ152	1/4W 1.5K
R127	ERDS2TJ103	1/4W 10K
R128	ERDS2TJ820	1/4W 82
R129	ERDS2TJ473	1/4W 47K
R130	ERDS2TJ103	1/4W 10K
R132	ERDS2TJ103	1/4W 10K
R133-137	ERDS2TJ102	1/4W 1K
R138	ERDS2TJ103	1/4W 10K
R139, 140	ERDS2TJ272T	1/4W 2.7K
R141, 142	ERDS2TJ102	1/4W 1K
R143, 144	ERDS2TJ222	1/4W 2.2K
R145, 146	ERDS2TJ102	1/4W 1K (E,GC)
R145, 146	ERDS2TJ821T	1/4W 820 (EG)
R147, 148	ERDS2TJ474	1/4W 470K
R149	ERDS2TJ680T	1/4W 68
R171, 172	ERDS2TJ102	1/4W 1K
R173	ERDS2TJ471	1/4W 470
R175	ERDS2TJ102	1/4W 1K
R176	ERDS2TJ391	1/4W 390
R191	ERDS2TJ103	1/4W 10K (E,GC)
R192	ERDS2TJ122	1/4W 1.2K (E,GC)
R193	ERDS2TJ182	1/4W 1.8K (E,GC)

Ref. No.	Part No.	Values & Remarks
R194	ERDS2TJ122	1/4W 1.2K (E,GC)
R195	ERDS2TJ222	1/4W 2.2K (E,GC)
R201-203	ERDS2TJ222	1/4W 2.2K
R205, 206	ERDS2TJ103	1/4W 10K
R207, 208	ERDS2TJ473	1/4W 47K
R209, 210	ERDS2TJ122	1/4W 1.2K
R211, 212	ERDS2TJ224T	1/4W 220K
R213, 214	ERDS2TJ102	1/4W 1K (E,EG)
R213, 214	ERDS2TJ562T	1/4W 5.6K (GC)
R215, 216	ERDS2TJ473	1/4W 47K (E,EG)
R215, 216	ERDS2TJ103	1/4W 10K (GC)
R217, 218	ERDS2TJ104	1/4W 100K
R221, 222	ERDS2TJ102	1/4W 1K
R223, 224	ERDS2TJ682T	1/4W 6.8K
R227, 228	ERDS2TJ471	1/4W 470
R229	ERDS2TJ102	1/4W 1K
R255, 256	ERDS2TJ331	1/4W 330 (E,EG)
R257, 258	ERDS2TJ221	1/4W 220 (E,EG)
R259, 260	ERDS2TJ184T	1/4W 180K (E,EG)
R261, 262	ERDS2TJ123	1/4W 12K (E,EG)
R263, 264	ERDS2TJ680T	1/4W 68 (E,EG)
R265, 266	ERDS2TJ104	1/4W 100K (E,EG)
R267, 268	ERDS2TJ272T	1/4W 2.7K (E,EG)
R269, 270	ERD25FJ470	1/4W 47 ⚠(E,EG)
R301, 302	ERDS2TJ223	1/4W 22K
R303, 304	ERDS2TJ123	1/4W 12K
R305, 306	ERDS2TJ153	1/4W 15K
R307, 308	ERDS2TJ122	1/4W 1.2K
R309, 310	ERDS2TJ102	1/4W 1K
R311, 312	ERDS2TJ104	1/4W 100K
R313	ERDS2TJ824	1/4W 820K
R314	ERDS2TJ332	1/4W 3.3K
R315, 316	ERDS2TJ103	1/4W 10K
R317	ERDS2TJ183T	1/4W 18K
R318	ERDS2TJ103	1/4W 10K
R319, 320	ERDS2TJ105T	1/4W 1M
R321	ERDS2TJ561	1/4W 560
R322-324	ERDS2TJ222	1/4W 2.2K
R391, 392	ERDS2TJ224T	1/4W 220K
R393, 394	ERDS2TJ223	1/4W 22K
R399	ERDS2TJ272T	1/4W 2.7K
R401, 402	ERDS2TJ102	1/4W 1K
R403, 404	ERDS2TJ122	1/4W 1.2K
R405, 406	ERDS2TJ104	1/4W 100K
R407, 408	ERDS2TJ102	1/4W 1K
R409	ERDS2TJ105T	1/4W 1M
R410	ERDS2TJ222	1/4W 2.2K
R411, 412	ERDS2TJ332	1/4W 3.3K
R415-417	ERDS2TJ102	1/4W 1K

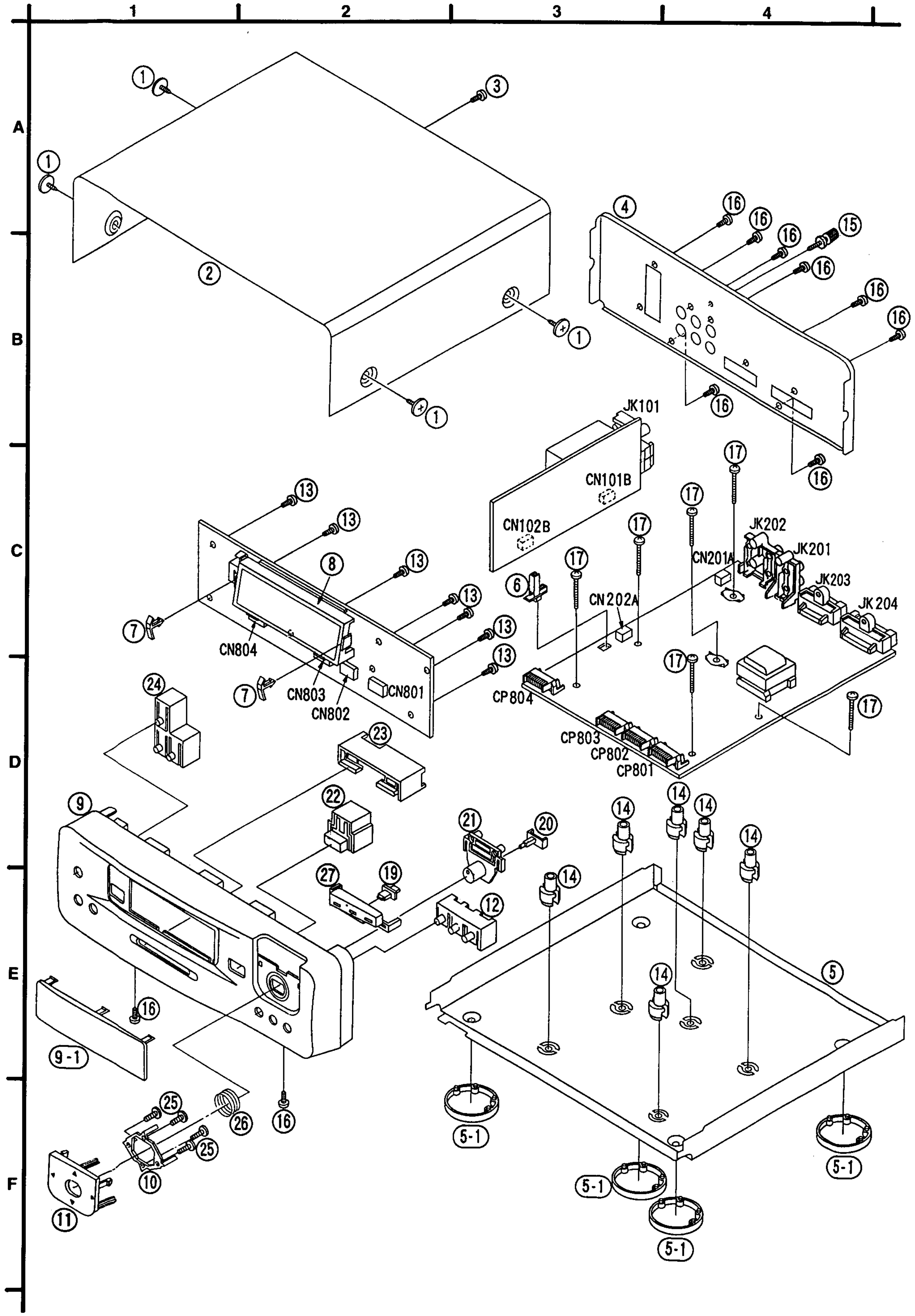
Ref. No.	Part No.	Values & Remarks
R418	ERDS2TJ334	1/4W 330K
R419	ERDS2TJ472	1/4W 4.7K
R420, 421	ERDS2TJ473	1/4W 47K
R431, 432	ERDS2TJ471	1/4W 470
R433, 434	ERDS2TJ104	1/4W 100K
R435, 436	ERDS2TJ102	1/4W 1K
R437	ERDS2TJ472	1/4W 4.7K
R438, 439	ERDS2TJ105T	1/4W 1M
R441, 442	ERDS2TJ102	1/4W 1K
R443, 444	ERDS2TJ473	1/4W 47K
R447	ERDS2TJ102	1/4W 1K
R448	ERDS2TJ104	1/4W 100K
R451	ERDS2TJ103	1/4W 10K
R601, 602	ERDS2TJ153	1/4W 15K
R603, 604	ERDS2TJ333	1/4W 33K
R605, 606	ERDS2TJ152	1/4W 1.5K
R607, 608	ERDS2TJ392T	1/4W 3.9K
R609, 610	ERDS2TJ104	1/4W 100K
R611, 612	ERDS2TJ103	1/4W 10K
R613, 614	ERDS2TJ104	1/4W 100K
R615-618	ERDS2TJ105T	1/4W 1M
R701, 702	ERDS2TJ102	1/4W 1K
R704	ERDS2TJ471	1/4W 470
R705, 706	ERDS2TJ102	1/4W 1K
R801-804	ERDS2TJ104	1/4W 100K
R811-813	ERDS2TJ103	1/4W 10K
R814	ERDS2TJ821	1/4W 820
R815	ERDS2TJ102	1/4W 1K
R816	ERDS2TJ122	1/4W 1.2K
R817	ERDS2TJ152	1/4W 1.5K
R818	ERDS2TJ182	1/4W 1.8K
R819	ERDS2TJ222	1/4W 2.2K
R820	ERDS2TJ821	1/4W 820
R821	ERDS2TJ102	1/4W 1K
R822	ERDS2TJ122	1/4W 1.2K
R823	ERDS2TJ152	1/4W 1.5K
R824	ERDS2TJ182	1/4W 1.8K
R825	ERDS2TJ222	1/4W 2.2K
R826	ERDS2TJ332	1/4W 3.3K
R827	ERDS2TJ472	1/4W 4.7K
R828	ERDS2TJ682T	1/4W 6.8K
R832-840	ERDS2TJ104	1/4W 100K
R841	ERDS2TJ224T	1/4W 220K
R842, 843	ERDS2TJ393	1/4W 39K
R844	ERDS2TJ103	1/4W 10K
R845-847	ERDS2TJ222	1/4W 2.2K
R848	ERDS2TJ102	1/4W 1K
R849	ERDS2TJ392T	1/4W 3.9K
R850, 851	ERDS2TJ222	1/4W 2.2K

Ref. No.	Part No.	Values & Remarks
R852	ERDS2TJ392T	1/4W 3.9K
R853	ERDS2TJ103	1/4W 10K
R855	ERDS2TJ392T	1/4W 3.9K
R856	ERDS2TJ103	1/4W 10K
R857	ERDS2TJ331	1/4W 330
R858, 859	ERDS2TJ102	1/4W 1K
R860, 861	ERDS2TJ223	1/4W 22K
R864	ERDS2TJ221	1/4W 220
R865	ERDS2TJ104	1/4W 100K
R866	ERDS2TJ470	1/4W 47
R867	ERDS2TJ223	1/4W 22K
R868, 869	ERDS2TJ473	1/4W 47K
R870	ERDS2TJ272T	1/4W 2.7K
R871	ERDS2TJ820	1/4W 82
R872	ERDS2EJ121	1/4W 120
R875, 876	ERDS2TJ471	1/4W 470
R877, 878	ERDS2TJ271	1/4W 270
R880	ERDS2TJ221	1/4W 220
R882	ERDS2TJ391	1/4W 390
R901, 902	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R903, 904	ERDS2TJ102	1/4W 1K
R905	ERG1SJ220E	1W 22
R906	ERG1SJ330E	1W 33
R909	ERDS2TJ332	1/4W 3.3K
R910	ERG1SJ220E	1W 22
R912, 913	ERDS2TJ332	1/4W 3.3K
R914	ERDS2TJ103	1/4W 10K
R915, 916	ERDS2TJ393	1/4W 39K
R917	ERD25FVJ4R7T	1/4W 4.7 ⚠
R918	ERDS2TJ472	1/4W 4.7K
R921, 922	ERDS2TJ151	1/4W 150
R923	ERDS2TJ152	1/4W 1.5K
R924	ERDS2TJ331	1/4W 330
R931	ERDS2TJ2R2T	1/4W 2.2
R932	ERDS2TJ101	1/4W 100
R933	ERDS2TJ2R2T	1/4W 2.2
R951, 952	ERDS2TJ100	1/4W 10
		CAPACITORS
C101	ECBT1C103NS5	16V 0.01U
C103	ECBT1C103NS5	16V 0.01U
C104, 105	ECBT1H102KB5	50V 1000P
C106	ECBT1C103NS5	16V 0.01U
C107	ECBT1H473ZF5	50V 0.047U
C108	ECBT1H100JC5	50V 10P (E, GC)
C108	ECBT1H8R2KC5	50V 8.2P (EG)
C109, 110	ECBT1C103NS5	16V 0.01U
C111	ECEA1EKA4R7B	25V 4.7U
C112	ECBT1C103NS5	16V 0.01U
C113	ECBT1H102KB5	50V 1000P
C114	ECEA1HKA3R3B	50V 3.3U
C115	ECEA1EKA4R7B	25V 4.7U
C116	ECBT1C822KS5	16V 8200P
C117	ECQB1H102JF3	50V 1000P (E, GC)
C117	ECQB1H561JF3	50V 560P (EG)
C118, 119	ECFR1C103KR	16V 0.01U
C120, 121	ECEA1HKA010B	50V 1U
C122	ECEA1HKA2R2B	50V 2.2U
C123	ECEA1HKA010B	50V 1U
C124	ECBT1H102KB5	50V 1000P
C125	ECBT1H150JC5	50V 15P
C126	ECBT1H473ZF5	50V 0.047U
C127	ECEA1CKA220B	16V 22U
C128	ECBT1H102KB5	50V 1000P
C129, 130	ECEA0JKA101B	6.3V 100U
C132	ECBT1H102KB5	50V 1000P
C133, 134	ECBT1H270JU5	50V 27P
C135, 136	ECBT1C103KS5	16V 0.01U
C137, 138	ECBT1H561KB5	50V 560P
C139, 140	ECBT1C562KR5	16V 5600P (E, GC)
C139, 140	ECBT1C682KR5	16V 6800P (EG)
C141-144	ECEA1HKA010B	50V 1U
C145	ECBT1H220JC5	50V 22P
C148	ECBT1C103NS5	16V 0.01U
C149	ECBT1H104ZF5	50V 0.1U
C171, 172	ECBT1H102KB5	50V 1000P
C173	ECEA1CKA220B	16V 22U
C174	ECEA1CKA100B	16V 10U
C181	ECBT1H471KB5	50V 470P (EG)
C196	ECBT1H102KB5	50V 1000P
C201, 202	ECBT1H104ZF5	50V 0.1U
C203-205	ECBT1H470J5	50V 47P
C207, 208	ECBT1H151KB5	50V 150P (E, EG)
C209, 210	ECBT1H180J5	50V 18P (E, EG)
C209, 210	ECBT1H101KB5	50V 100P (GC)
C211-214	ECBT1H101KB5	50V 100P
C251, 252	ECBT1H102KB5	50V 1000P (E, EG)
C253, 254	ECEA1AKA330B	10V 33U (E, EG)
C255, 256	ECBT0J223MS5	6.3V 0.022U (E, EG)
C257, 258	ECBT1C682KR5	16V 6800P (E, EG)
C259, 260	ECEA1CKA100B	16V 10U (E, EG)
C261, 262	ECBT1E103ZF	25V 0.01U (E, EG)
C301, 302	ECEA1CKA100B	16V 10U
C303, 304	ECBT1H820KB5	50V 82P
C305, 306	ECBT1H102KB5	50V 1000P
C307-310	ECEA1CKA100B	16V 10U
C311, 312	ECBT1H101KB5	50V 100P
C313, 314	ECEA1HKAR15B	50V 0.15U
C315-318	ECEA1CKA100B	16V 10U
C319, 320	ECEA1HKA3R3B	50V 3.3U
C321, 322	ECBT1H271KB5	50V 270P
C323, 324	ECBT1H102KB5	50V 1000P
C325, 326	ECEA1AKA101B	10V 100U
C327-330	ECEA1CKA100B	16V 10U
C333	ECFR1E823KR	25V 0.082U
C334	ECFR1E472KR	25V 4700P
C335	ECEA1CN100SB	16V 10U
C336	ECBT0J223MS5	6.3V 0.022U
C337	ECEA1CKA100B	16V 10U
C338	ECEA1AKA101B	10V 100U
C339	ECEA1EKA4R7B	25V 4.7U
C351, 352	ECQV1H224JM3	50V 0.22U
C353, 354	ECQV1H154JM3	50V 0.15U
C355, 356	ECEA1HKAR22B	50V 0.22U
C357, 358	ECFR1E223KR	25V 0.022U
C359, 360	ECFR1E273KR	25V 0.027U
C361-364	ECBT1C562KR5	16V 5600P
C365, 366	ECBT1H561KB5	50V 560P
C375, 376	ECQB1H123JF3	50V 0.012U
C377, 378	ECEA1HKA2R2B	50V 2.2U
C379-383	ECBT1E103ZF	25V 0.01U
C384	ECEA1CKA100B	16V 10U
C385	ECBT1E103ZF	25V 0.01U
C386, 387	ECBT1H470J5	50V 47P
C389	ECBT1H470J5	50V 47P
C391	ECFR1E473KR	25V 0.047U
C392, 393	ECEA1CKA100B	16V 10U
C401	ECEA1CKA220B	16V 22U
C402	ECBT1H102KB5	50V 1000P
C403	ECEA1EKA4R7B	25V 4.7U
C404	ECEA1HKA010B	50V 1U
C413, 414	ECEA1CKA100B	16V 10U
C431	ECEA1EKA4R7B	25V 4.7U
C441	ECEA1EKA4R7B	25V 4.7U
C601, 602	ECEA1CKA100B	16V 10U
C603, 604	ECEA1EKA4R7B	25V 4.7U
C605, 606	ECEA1CKA100B	16V 10U
C607, 608	ECBT1C332KR5	16V 3300P
C609, 610	ECBT1E103ZF	25V 0.01U
C701-707	ECBT1H101KB5	50V 100P
C708	ECBT1H102KB5	50V 1000P
C709, 710	ECEA1CKA100B	16V 10U
C712	ECBT1H102KB5	50V 1000P
C751, 752	ECBT1E103ZF	25V 0.01U
C753	ECBT1H102KB5	50V 1000P
C801	ECA0JM102B	6.3V 1000P
C802	ECBT1H102KB5	50V 1000P
C803	ECBT1H104ZF5	50V 0.1U
C805	ECEA0JKA101B	6.3V 100U
C806	ECBT1E223ZF	25V 0.022U
C807	ECBT1H102KB5	50V 1000P
C808, 809	ECBT1E103ZF	25V 0.01U
C810	ECEA1CKA100B	16V 10U
C811	ECBT1E103ZF	25V 0.01U
C812	ECBT1H101KB5	50V 100P

Ref. No.	Part No.	Values & Remarks
C813, 814	ECEA1HKA010B	50V 1U
C815	ECBT1E103ZF	25V 0.01U
C851	ECEA1HKAR33B	50V 0.33U
C852	ECQV1H104JM3	50V 0.1U
C861	ECBT1H220GC5	50V 22P
C862	ECBT1H270JU5	50V 27P
C871	ECEA0JKA101B	6.3V 100U
C872	ECBT1E103ZF	25V 0.01U
C901, 902	ECKT1H223ZF	50V 0.022U
C903	RCE1EM471BV	25V 470U
C904	RCE1EM471BV	25V 470U ⚠
C905-907	ECBT1E103ZF	25V 0.01U
C908	ECEA1CKA100B	16V 10U
C909	ECBT1H104ZF5	50V 0.1U
C910	ECEA1CKA100B	16V 10U
C911	RCE1HM221BV	50V 220U ⚠
C912	ECEA1VKA100B	35V 10U
C913	ECBT1E103ZF	25V 0.01U
C914	ECEA1AKA101B	10V 100U
C915	ECBT1E103ZF	25V 0.01U
C916	ECBT1H102KB5	50V 1000P
C920	ECEA1VKA100B	35V 10U
C921	ECBT1E103ZF	25V 0.01U
C951	RCE1EM471BV	25V 470U ⚠
C952	ECBT1H104ZF5	50V 0.1U
C953	ECBT1H102KB5	50V 1000P
C991, 992	ECEA1AKA470B	10V 47U (E, EB)
C993	ECEA1CKA100B	16V 10U

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS LIST	
1	RHD30007	SCREW	
2	RKM0266-K	CABINET	
3	XTB3+8JFZ	SCREW	
4	RGR0197A-A1	REAR PANEL	(E)
4	RGR0197A-H	REAR PANEL	(EG)
4	RGR0197A-B	REAR PANEL	(GC)
5	RFKJSCH404EK	BOTTOM BOAD ASS'Y	
5-1	RKA0011-3	FOOT	
6	RMN0203	HOLDER	
7	RMN0195	FL SPACER	
8	RMN0284	FL HOLDER	
9	RFKGTCH510EK	FRONT PANEL ASS'Y	
9-1	RKW0349-V	FL PANEL	
10	RGL0240-Q	PANEL LIGHT	
11	RGU1089-K	BUTTON, MULTI CONTROL	
12	RGU1099-K	BUTTON, EQ SPACE	
13	XTBS26+8J	SCREW	
14	SHE185-2	P.C.B. SPACER	
15	SNE2123	GND SCREW	(E, EG
16	XTBS3+8JFZ1	SCREW	
17	XTB3+16JFZ	SCREW	
19	RGL0241-Q	PANEL LIGHT	
20	RGL0242-Q	PANEL LIGHT	
21	RFKNTCH510EA	BUTTON, SET	(E, GC
21	RFKNTCH510EC	BUTTON, SET	(EG)
22	RGU1091-K	BUTTON, SELECTOR	
23	RGU1092-K	BUTTON, EQ/TIMER	
24	RFKNTCH510EE	BUTTON, V. BASS	
25	RHE5079YA	SCREW	
26	RMB0370-L	SPRING	
27	RFKNTCH510EB	BUTTON BAND	(E, GC
27	RFKNTCH510ED	BUTTON BAND	(EG)

■ Cabinet Parts Location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